

Metadata standards for Ireland and Northern Ireland's Population Health Observatory (INIsPHO) and All-Ireland electronic Health Library (AleHL)

Version 2.0



Published by The Institute of Public Health
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ISBN 0-9542316-7-8

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1 October 2006

Metadata attached to this document

| Metadata Element | |
|------------------|---|
| Title | Metadata standards for Ireland and Northern Ireland's Population Health Observatory (INIsPHO) and All-Ireland electronic Health Library (AleHL) Version 2.0 |
| Creator | Institute of Public Health in Ireland, info@inispho.org |
| Subject | NPHL terms: policy/health policy/information Keywords:information; library and information centres; information technology; public health observatories; standards; data Project: INIsPHO |
| Description | Documentation of the development of metadata standards for INIsPHO & AleHL, Version 2.0 of the standards |
| Publisher | Institute of Public Health in Ireland, info@inispho.org |
| Contributor | Paul Kavanagh, Kevin P Balanda, Niamh Shortt Institute of Public Health in Ireland info@inispho.org |
| Date | Created: 15/08/06 Modified: 1/10/06 |
| Type | Standard |
| Format | Word document |
| Identifier | ISBN 0-9542316-7-8 |
| Source | |
| Language | En |
| Relation | Version 2.0 |
| Coverage | Region: All-Ireland |
| Rights | Downloadable from www.inispho.org |



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Abbreviations

| | |
|---------|---|
| AleHL | All-Ireland electronic Health Library |
| APHO | Association of Public Health Observatories |
| DCMES | Dublin (Ohio) Core Metadata Element Set |
| DCMI | Dublin (Ohio) Core Metadata Initiative |
| e-GIF | UK e-Government Interoperability Framework |
| e-GMS | UK e-Government Metadata Standards |
| EHSSB | Eastern Health and Social Services Board |
| HDA | Health Development Agency |
| HDAT | Health Development Agency Public Health Information Thesaurus |
| HRB | Health Research Board |
| HSE | Health Services Executive |
| IFH | Investing For Health |
| INIsPHO | Ireland and Northern Ireland's Population Health Observatory |
| IPH | Institute of Public Health in Ireland |
| IPSMS | Irish Public Service Metadata Standard |
| NeHL | National electronic Library for Health |
| NICE | National Institute for Health and Clinical Excellence |
| NLH | National Library for Health |
| NPHL | National Public Health Language |
| PHeL | Public Health electronic Library |
| PHITS | Public Health Information Tagging Standard |
| PHO | Public Health Observatory |
| PHRTES | Public Health Resource Type Encoding Scheme |

Glossary

| | |
|------------------|--|
| Metadata | “Information about information”; a structured set of details about an information resource which is useful to those who store it and to those who wish to access and use it. Examples include resource title, creator, and subject. |
| Interoperability | Ability of a system to work with other systems without special effort on the part of a user. For example, searching through the information stores of a number of public health observatories from a single site requires those observatories to be interoperable. |
| Thesaurus | A list of synonymous terms (words or terms with similar meanings); can be used to control vocabulary to improve the precision of searching an information store. |
| Taxonomy | A hierarchical classification system used to describe resources |

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Foreword

A key objective of Ireland and Northern Ireland's Population Health Observatory (INIsPHO) is to increase awareness, access and use of health information and health intelligence on the island. Amongst other activities, it does this by identifying, collating and documenting knowledge resources needed to support evidence-based public health policy, planning and practice. The observatory's website (<http://www.inispho.org>) is a key element of its strategy to making these more widely available.

Metadata ("information about information") is a term describing the set of details used to catalogue a knowledge resource such as its title, its creator or subject. Metadata standards define what details are to be recorded and how they are to be recorded. They are vital pieces of the infrastructure that enables knowledge resources to be described, managed, accessed, retrieved and shared. They also support the co-ordinated development of health information infrastructure, knowledge management and the health intelligence function.

The metadata standards for the island's population health observatory (INIsPHO) are described in this publication. They are based on the internationally agreed standards that underpin e-government initiatives in both the Republic of Ireland and Northern Ireland; and incorporate the National Public Health Language (NPHL), a controlled language for public health being developed in Britain.

This second version of the observatory's metadata standards has also been adopted as the metadata standards for the All-Ireland electronic Health Library (AleHL). In this endeavour, the Institute would like to acknowledge the valuable contributions made by Dougie Beaton, Brian Galvin, Aoife Lawton, Lorraine Lindsay, Siobhan McCarthy.

While these metadata standards have been developed to support INIsPHO and AleHL, the longer term aim has been to align them with other likely future developments on the island. We hope they will be useful and timely, and assist the Health Information Quality Authority (HIQA) in Ireland and the equivalent agency in Northern Ireland with responsibility for information standards.

Dr Jane Wilde

Director

Institute of Public Health in Ireland

Summary

Ireland and Northern Ireland's Population Health Observatory (INIsPHO), the Institute of Public Health in Ireland, and use of health information and health intelligence on the island.

For information to be mobilised effectively and efficiently, knowledge resources must be easy to manage and find. Libraries use cataloguing systems to ensure that those who store and retrieve its resources know exactly where they are located.

Metadata is the term used to describe the structured set of details which are attached to a knowledge resource in order to facilitate storage, access and usage. Examples of these details include a resource's "title", its "creator" and "subject". The application of metadata to the resources in the INIsPHO Library helps ensure the knowledge they contain is easier to find and incorporate into public health policy, plans and practice.

In terms of structure, the metadata standards developments in Ireland, the UK and Europe all follow the framework of the Dublin (Ohio) Core Metadata Element Set (DCMES). Version 1.0 of the Observatory's metadata standards was published in July 2005. Version 1.0 was compatible with DCMES and allows INIsPHO to interoperate with its main partners.

The "subject" of a knowledge resource needs to be described in a controlled and consistent way. The use of standardised terminologies for this purpose ensures that the understanding of concepts is the same within and between systems. Since July 2005, two vocabularies (PHITS and HDAT) used in Version 1.0 of the observatory's standards have been merged into the National Public Health Language (NPHL). The NPHL has been incorporated into Version 2.0 of INIsPHO's metadata standards, and INIsPHO will continue to align itself with further developments.

In developing the metadata standards for INIsPHO the need for interoperability was paramount. Interoperability is the ability of a system to work with other systems without extra effort on the part of a user. For example, searching through the information stores of a number of public health observatories from a single site requires those observatories to be interoperable. A standardised approach to metadata set structure and encoding is an important step towards promoting this easy exchange of information. Since March 2006, INIsPHO has been interoperable with the other member public health observatories of the Association of Public Health Observatories (APHO).

This information sharing strategy ensures not only greater dissemination and accessibility of health related material but also reduces the possible duplication of resources being offered. To this end, INIsPHO and its partners on the island of Ireland have undertaken the initial development of the All-Ireland electronic Health Library (AleHL). Phase I of this project makes the INIsPHO Library interoperable with the Health Service Executive's (HSE) healthdata.info website, HSE Archive of Irish Health Publications, the Health Research Board's (HRB) National Documentation Centre on Drug Use website, and Investing for Health's (IfH) Wellnet website.

After describing its development, this document contains a detailed description of INIsPHO & AleHL metadata standards, Version 2.0.

1. Introduction

The rapid generation and easy availability of information is a feature of modern society. Information is increasingly important to planning and monitoring health as part of the drive to use evidence to support the decisions made about individuals and about populations. The objective of the First Strand of the European Union Public Health Programme is “to improve information and knowledge for the development of public health”.¹ The health strategy in the Republic of Ireland, *Quality and Fairness*, includes the commitment for planning and decision making to be more strongly based on evidence.² The publication of a National Health Information Strategy and the establishment of a Health Information and Quality Authority are important drivers for this change. In Northern Ireland, the public health strategy, *Investing in Health*³ also recognises the need to base decisions on the best available evidence of the population’s health status and its goals, objectives and targets are framed in health information. The Review of Public health in Northern Ireland has also highlighted the need for improved knowledge base and knowledge management.

2. What are metadata?

Public health observatories (PHOs) can help harness this information explosion through production and dissemination of intelligence to inform policy.⁴ The knowledge resources they seek to use must be stored in a systematic way if the knowledge they contain is to be mobilised for decision-makers.

Metadata has been simply described as “information about information”.⁵ It provides a structured set of details about a knowledge resource which is useful to those who store it and those who wish to access and use it. Library catalogues commonly employ such systems: for example, information on a books’ title, its author, its genre, and publisher may be recorded to facilitate easy storage and future retrieval. Finding everyday objects in supermarkets requires a similar process.

Without metadata the information contained within the knowledge resources cannot be effectively activated for use in policy, planning and practice: imagine trying to find a book in a library which had no cataloguing system and did not store resources in a structured way.

3. Benefits of metadata

Metadata makes knowledge resources easier to manage and find. By describing knowledge resources in a structured way that both people and computers can understand, they can be easily located within and across electronic storage systems by browsing content or performing a search. Describing knowledge resources in this way helps to overcome the problem of how best to satisfy a user's information needs when a vast amount is available.

The Irish Public Service Metadata Standard (IPSMS) Consultation Paper describes a number of benefits of metadata; these include:

- The adoption of a single metadata standard across resource creators and providers facilitates precise and accurate information retrieval.
- By searching resources by a particular descriptor, for example title or creator, the result will meet the users' needs more precisely. For example, with metadata descriptors it is possible to distinguish between a search looking for 'Joe Green' as creator and 'The Green Paper on Adult Education' as title, and therefore return the resource which more closely matches the user's requirements.
- Metadata can be used to provide a range of pertinent details about a resource, some of which may be missing from the body of the resource itself. Again, the user can search and view these details to return the resource they require, rather than browse the entire resource, or return an imprecise search.
- Increasing the precision of searching is more efficient in terms of user time.
- Metadata also helps with the maintenance of information resource collections. It can be used to identify information that needs to be updated or archived, and individuals responsible for maintaining a resource.
- The attention given to the creation of metadata can be an indicator of the quality of the information resource.
- Metadata can help to "join up" service providers. A standard approach to describing and storing information resources is a basis to searching and retrieving resources which may be distributed across a number of collections in different locations.

4. Why apply metadata to INIsPHO?

While PHOs serve a number of roles, some of which may be unique to the local context which they serve, they all produce and disseminate public health intelligence in order to inform policy.⁴ At their core, observatories are based on internal and external stores of information (for example documents, numerical datasets, recorded transcripts, images etc) that need to be managed in a way which allows easy retrieval by decision-makers in response to their particular information needs. The application of metadata to these stores will facilitate information mobilisation from the collected knowledge resources. Thus, metadata is a basis to the knowledge management which is required to promote the translation of evidence and information into practice.

5. Development of INIsPHO metadata standards, Version 1.0

5.1 Promoting interoperability

From recognising the value of applying metadata to knowledge resources, the question of how this was best achieved arose.

INIsPHO could have designed its own metadata system: what information should be attached to knowledge resources; what structure it should take; and what rules should govern it? However, this approach would limit interoperability and may not be efficient when it could apply existing standards.

Interoperability is the ability of a system to work with other systems without special effort on the part of the user.⁷ There are an ever increasing number of knowledge resources, held by various organisations available to users. Most of these resources are held on computer systems. Within organisations, collections may be spread across computer systems: for example, knowledge resources could be distributed across a number of departments within a government. In addition, the knowledge resources which a user needs may be distributed across a number of organisations: state agencies, local government and community groups may all have information relevant to a particular issue. Thus, computer systems which store knowledge resources are interoperable if they can “join-up” and allow the user easy access to the contents of each. From the user’s perspective, this means that they can perform a single search seamlessly across these systems. For INIsPHO to facilitate access to external stores of information, or its internal store to be accessed by external searches (for example from another PHO) then it must be highly interoperable.

Interoperability is facilitated by adoption of shared metadata standards and offers a number of potential advantages. Once a resource has standard metadata attached to it in one system, it can be made available to all other systems which apply the same metadata standards and are interoperable with it. This is the basis to information sharing. From a user’s perspective, if the computer systems of a number of organisations are connected, a search performed through one of those organisations can return information held by other organisations with which it interoperates. This increases the knowledge which can be accessed by a single search to support decision making, and the search skills acquired by users of one system are easily transferable to other systems.

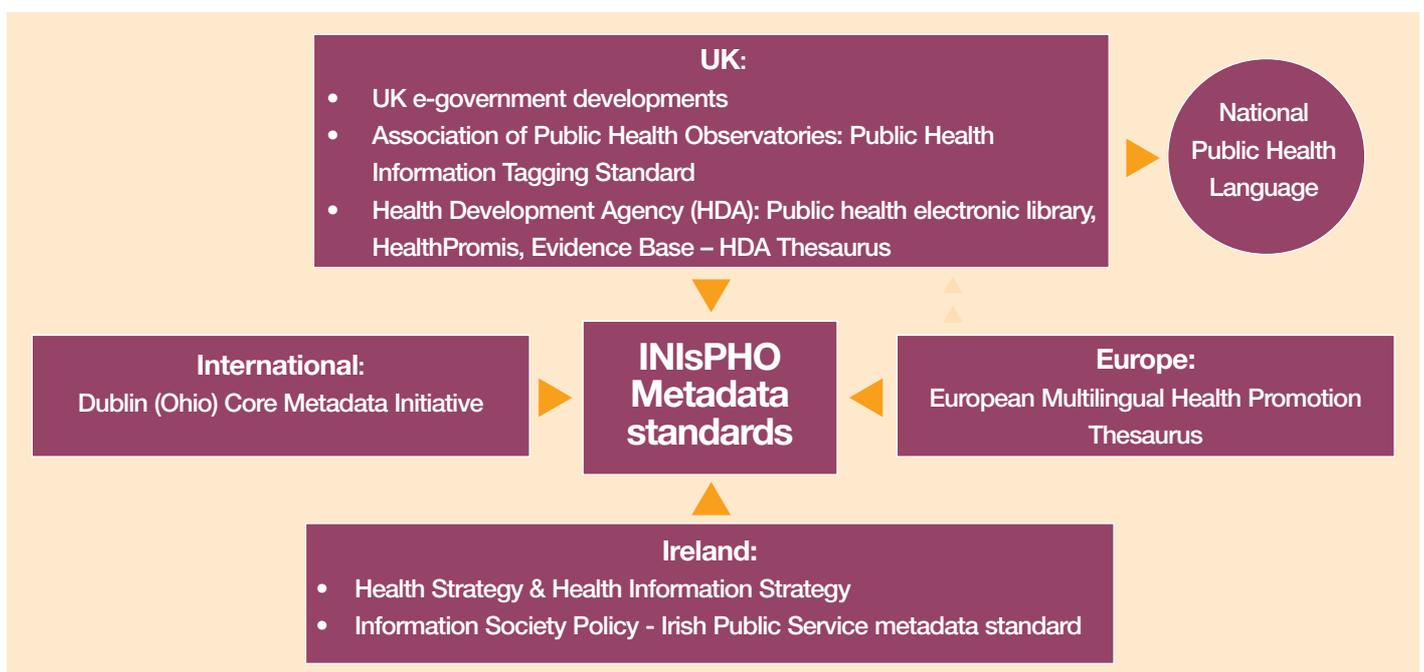
In the development of a metadata standard for INIsPHO, it was therefore desirable that it promotes interoperability between the observatory and its potential partners. This

approach increases the power of INIsPHO to mobilise knowledge for its users. In addition, value is added to existing information by promoting its use. While application of metadata standards is necessary for interoperability it is not sufficient. Interoperability has a number of components⁷:

- Technical interoperability requires a move to converge the standards required for computer systems to interoperate.
- Semantic interoperability refers to the consistent communication of key metadata concepts between interoperating systems. If different terms are used to describe the same concept then confusion can arise. Thus, the set of metadata details attached to each resource should have a common standard for structure, and for the details themselves. Standardised terminologies (thesauri, taxonomies and classification schemes) are used to ensure that the understanding of a concept is the same within and between systems. This aspect of interoperability will receive more attention below.
- Political/human interoperability refers to the process change and staff and user training which is required within and across organisations to promote information sharing.
- Intercommunity interoperability refers to the culture change which facilitates sharing of information across community boundaries. This is particularly important in the field of public health which draws on the expertise of multiple disciplines and promotes partnership working.

Potential drivers of INIsPHO metadata standards, Version 1.0 were sought. Figure 1 presents a map of the areas which were examined.

Figure 1: Map of potential drivers for INIsPHO metadata standards, Version 1.0



5.2 The Dublin (Ohio) Core Metadata Element Set

The Dublin Core Metadata Initiative (DCMI) is an organisation “dedicated to fostering the widespread adoption of interoperable metadata standards and promoting the development of specialised metadata vocabularies for describing resources to enable more intelligent resource discovery systems”.⁸ The initiative developed from an initial workshop which took place in Dublin, Ohio in 1995. The Dublin Core Metadata Element Set (DCMES) was the first metadata standard delivered by DCMI. It has been adopted by numerous agencies (including those in the United Kingdom and the Irish government) as the standard format for providing information in an electronic form. It defines fifteen metadata elements to describe resources across a range of disciplines and organisations that need to organise and classify information. The DCMES can be used in a simple form (“unqualified”) or in a “qualified” form which adds qualifiers to the 15 main elements to refine their meaning. The value for a DCMES element can be assigned from a controlled vocabulary. Table 1 contains the metadata elements of the DCMES along with definitions. The DCMES metadata elements do not have any refinements.

Table 1: Dublin Core Metadata Element Set

| Metadata Element | Definition |
|------------------|---|
| Title | A name given to the resource |
| Creator | An entity responsible for making the content of the resource |
| Subject | A topic of the content of the resource |
| Description | An account of the content of the resource |
| Publisher | An entity responsible for making the resource available |
| Contributor | An entity responsible for making contributions to the content of the resource |
| Date | A date of an event in the life of the resource |
| Type | The nature or genre of the content of the resource |
| Format | The physical or digital manifestation of the resource |
| Identifier | An unambiguous reference to the resource within a given context |
| Source | A reference to a resource from which the present resource is derived |
| Language | A language of the intellectual content of the resource |
| Relation | A reference to a related resource |
| Coverage | The extent or scope of the content of the resource |
| Rights | Information about rights held in and over the resource |

Adapted from DCMIP

Each element is described in terms of the descriptors in table 2, which are determined and defined by DCMI.

Table 2: Descriptions used in the Dublin Core Metadata Element Set

| Definition: | The formal definition of the element |
|-------------------------|---|
| Obligation | Indicating if the element is part of the core or supplementary set (see above). Further to this, optional elements are also tagged with a recommended field if appropriate. |
| Purpose | Gives the purpose of the element and background information. |
| Notes | Additional information that is considered useful such as relevance to public health information. |
| Not to be confused with | Here the elements which may be similar are listed |
| Refinements | The sub-elements of the element |
| Examples | Examples are intended to demonstrate the meaning of each element. |
| Mapping: | Lists the elements in other metadata element schemes that the element relates to. |

Adopted from DCMF

5.3 Metadata standards in Ireland

In 1999, the Irish Government published an action plan under its policy for the Information Society in Ireland.¹⁰ Proceeding from this plan, an Inter-Departmental Group was established which provided guidelines for web publication by public sector organisations.⁹ Key recommendations were a call for the application of metadata to all new and existing information, and the use of a standard set of metadata elements based on the widely accepted Dublin (Ohio) Core Metadata Element Set (DCMES).¹² Following this the Irish Public Service Metadata Standard (IPSMS),⁵ which comprises a metadata element set and guidelines for its implementation, was issued.

5.4 Metadata standards in the UK

The UK has established an e-Government Interoperability Framework (e-GIF) which defines a minimum set of technical policies and specifications required to join up governmental computer systems to allow information to flow across government and the public sector.¹³ It considers a range of interoperability components described above. As part of this framework, an e-Government Metadata Standard (e-GMS) has been set.¹⁴ It is also based on the DCMES.¹²

5.5 Metadata standards for public health

DCMES is generic, and designed to provide a framework for resource collections across a range of disciplines and organisations. There are two principal developments in the area of public health knowledge management in the UK, namely the Association of Public Health Observatories¹⁵ (APHO) and the National Library for Health¹⁶ (NLH).

5.5.1 The National Public Health Language

The National Public Health Language²³ (NPHL) provides a common controlled set of terms to ensure consistency in describing public health data and activity. It was developed from the need to devise a single shared public health language suitable for the indexing and retrieval of public health resources.

It is the output of a collaborative project between the former Health Development Agency (HAD), which takes its work forward as part of NICE and the Association of Public Health Observatories (APHO).

Version 1 of NPHL was created by the integration of the HDA's HealthPromis thesaurus and APHO's Public Health Tagging System (PHITS); and augmented by the selective addition of terms from the Department of Health (DH) taxonomy and the former Government Category List (GCL). It takes the form of an ISO9000 thesaurus that contains some 3,000 terms related to public health practice.

Version 1.1 of NPHL has now been published. It has been amended to incorporate new terms and suggested changes by members of the NPHL Steering Group.

The system has a hierarchical classification structure across ten main headings which are presented in Table 3:

Table 3: Top NPHL Hierarchical Terms

| Classification Heading |
|--|
| Communication and Knowledge |
| Death, Disease and Disability |
| Determinants of Health |
| Equipment |
| Health Services and their Management |
| Health, Public Health, Health Promotion |
| People and Populations |
| Public Health Methods, Theory and Research |
| Settings and Places |
| Time Factors |

Source: adapted from NPHL²³

A single resource can have any number of tags attached to it to describe its subject. These tags are used in the "subject" metadata element of the resource's accompanying metadata set, under the "classification" refinement. By tagging resources systematically

using this standard, a user interrogating the resource collection can easily retrieve resources relevant to their information needs by defining these needs in terms of tags. If this standard is used to tag resources across collections (for example across observatories attached to the APHO) which are interoperable, the user can retrieve all the resources which bear this tag from each of these locations. This process greatly increases the power of searching and browsing, and the value of the observatories.

The standard is updated in line with requests made by users. The INIsPHO website has a facility, linked to “requests for change” at www.nphl.nhs.uk which allows users to make suggestions for updating the standard. This function allows the standard to adapt in line with users needs and should promote its usage.

The use of a thesaurus allows a term to be applied to a resource which encompasses all words with a similar meaning. This prevents the user missing relevant knowledge resources which have been tagged by a different word than the one used in the search procedure.

5.5.2 European developments

European developments in the area of metadata were also examined, including the “Cores” project, which aims to encourage sharing of metadata semantics,²⁴ and the “European Multilingual Thesaurus on Health Promotion in 12 Languages”.²⁰

6. Recent developments

Version 1.0 of INIsPHO's metadata standards was published in July 2005. Since then there have been two key developments:

- Interoperability with the member websites of the Association of Public Health Observatories (APHO).
- Development of the All-Ireland electronic Health Library (AleHL).

6.1 Interoperability with the Association of Public Health Observatories

In March 2006, the member websites of the Association of Public Health Observatories (consisting of the nine regional public health observatories in England, and the observatories of Wales, Scotland and Ireland (North and South)) became interoperable. This means that resources stored locally on these websites can be search and browsed from any of the other participating websites. For users of the INIsPHO Library, for example, over 15,000 additional resources (reports, data sets, and other public health tools and resources) became more easily available. In return, the knowledge resources on the INIsPHO Library became more easily available on the other member websites. This development has also opened the way for a more rational approach to the management and dissemination of these shared resources.

6.2 Development of the All-Ireland electronic Health Library

In early 2006, INIsPHO commenced the development of the first phase of the All-Ireland electronic Health Library (AleHL). This library will be a useful tool to anyone working in public health: it will facilitate more effective sharing and integration of information, link healthcare organizations, and open up new opportunities to collaborate. The longer term aim of this project is to support effective decision-making in public health by bringing together the different information that is currently distributed across various websites on the island.

Developed in collaboration with the Health Service Executive (HSE) and the Health Research Board (HRB) in the South, and the Investing for Health (IFH) Partnerships in the North, Phase I of the AleHL makes interoperable a number of member websites around the island:

- www.inispho.org (IPH)
- www.healthdata.info (HSE)
- Archive of Irish Health Publications (HSE)
- National Documentation Centre on Drug Use (HRB)
- www.wellnet.org.uk (IFH, EHSSB)

A central metadata cache storing the core metadata for the resources on the member websites has been established. This store can be searched from any of the member websites; greatly increasing the range of information available to their users.

It is planned to invite other websites to join the AleHL in Phase II after Phase I of the project has been independently reviewed.

6.3 Revision of INIsPHO's metadata standards

To take into account these recent developments, Version 1.0 of INIsPHO's metadata standards have been revised. Each metadata element has been revised and updated. The core elements - those to be sent to the central metadata cache of AleHL - have been agreed. These revised standards are now used in INIsPHO's Library and Phase I of the AleHL.

The provision of feedback on these standards will keep them vital and assure that they continue to meet the needs of INIsPHO and AleHL users. INIsPHO and AleHL users will also be afforded the opportunity to give feedback on the current version of the metadata standards, and make suggestions on their future development. This will be done through INIsPHO's website. Feedback is requested in three areas:

- The form and content of the metadata element set.
- The use of NPHL for tagging the "subject" element.
- The use of the Public Health Resource Type Encoding Scheme for describing the "type" element.

7. INIsPHO and AleHL metadata standards, Version 2.0

The metadata standards used for Ireland and Northern Ireland's Population Health Observatory (INIsPHO) and All-Ireland electronic Health Library (AleHL) are taken from the Dublin Core Metadata Element Set (DCMES).¹² As discussed earlier, DCMI promotes the use of this set of fifteen metadata elements which have been presented in Table 1 and Table 2.

Through adoption of the DCMES as the basis for the standards, interoperability with partner sites such as government departments (North and South), the APHO websites and the HDA sites, HealthPromis and Evidence Base and PheL is possible. This will maximise opportunities for information exchange and also allow INIsPHO and AleHL to work easily with other systems in the future. From the perspective of the user, it will allow resources to be retrieved in an effective and efficient manner without any additional effort.⁷

Table 4 lists the elements in the INIsPHO & AleHL metadata standards, Version 2.0. The DCMES has undergone some minimal adaptation for use in these standards. Mandatory metadata elements form "core" metadata for AleHL, and any optional elements are "supplementary".

Table 4: INIsPHO & AleHL metadata standards, Version 2.0 Element Set

| Metadata Element | Obligation | Refinements |
|------------------|---------------|------------------------|
| Title | Core | Alternative title |
| Creator | Core | - |
| Subject | Core | NPHL Terms |
| | | Keyword - free text |
| | | Programme |
| | | Project |
| Description | Core | Abstract |
| | | Table of contents |
| Publisher | Supplementary | - |
| Contributor | Supplementary | - |
| Date | Core | Acquired |
| | | Available |
| | | Created |
| | | Cut-off |
| | | Closed |
| | | Accepted |
| | | Copyrighted |
| | | Submitted |
| | | Declared |
| | | Issued |
| | | Modified |
| | | Next version due |
| | | Updating frequency |
| | | Valid |
| Type | Core | - |
| Format | Supplementary | Extent |
| Identifier | Supplementary | Bibliographic citation |
| | | ISBN |
| | | URL |
| Source | Supplementary | - |
| Language | Supplementary | - |
| Relation | Supplementary | Is part of |
| | | Is version of |
| | | Has version |
| | | Is format of |
| | | Is based on |
| | | Is basis for |
| Coverage | Supplementary | Region |
| | | Spatial-other |
| | | Temporal |
| | | Disaggregation |
| Rights | Core | - |

Adapted from DCM1¹²

The INIsPHO & AleHL metadata element set has been adapted from DCMI. These adaptations are minimal, and are confined to refinements. The overall integrity of the DCMES has been maintained to allow interoperability. This process of adaptation is in line with the approach to metadata in other disciplines, and in the APHO (Eastern Regional PHO, personal communication).

These adaptations are as follows:

- **Subject:** values for the category refinement are taken from the NPHL.
- **Type:** the Public Health Resource Type Encoding Scheme has been provided by the Eastern Regional Public Health Observatory.
- **Coverage:** :“spatial” and “temporal” refinements are used. In addition, a “disaggregation” refinement was added to describe personal attributes detailed on the resource; the main application of this refinement will be for datasets.

The full element set is now described.

7.1 Metadata Element: Title

| | |
|--------------------------------|--|
| Definition | A name given to the resource |
| Obligation | Core |
| Purpose | Enables the user to find a resource with a particular title, or to carry out more accurate searches. The title is commonly used as the key point of reference in the list of search results. |
| Notes | <ul style="list-style-type: none">• Use the formal title or create a meaningful title• If the official resource name would be found incomprehensible by the general public, it may be useful to create an alternative title• If the resource is in XML, Title should be copied from a suitable element in the resource.• If the item is one of a series with identical titles, it may be useful to add version number, status or date to avoid confusion. |
| Not to be confused with | – |
| Refinements | Alternative title: any form of the title used as a substitute or alternative to the formal title of the resource. |
| Examples | A document commonly known by informal title Title: Commission on financial management and control systems in the health services Title Alternative: The Brennan Report |
| Mapped to | DCMES IPSMS e-GMS |

7.2 Metadata Element: Creator

| | |
|--------------------------------|---|
| Definition | An entity primarily responsible for making the content of the resource |
| Obligation | Core |
| Purpose | To enable user to find resources that were written or otherwise prepared by a particular organisation or person |
| Notes | <ul style="list-style-type: none"> • It is often best to refer to a job title and give a full hierarchy within an organisation of a creator as individuals and divisions may move on • Give full contact details, and try to give generic rather than personal, name based emails as these are prone to change, unless required for audit trails |
| Not to be confused with | <p>Publisher: the creator is responsible for the intellectual or creative content of the resource; the publisher is the person or organisation that makes the resource available. Although in many cases, the creator and publisher may be identical or closely linked.</p> <p>Contributor: the creator is responsible for the intellectual or creative content of the resource; the contributor played an important role but did not have primary or overall responsibility for the content.</p> |
| Refinements | - |
| Examples | <i>Inequalities in mortality 1989-1998. A report on All-Ireland mortality data.</i> Creator: Institute of Public Health in Ireland, info@publichealth.ie |
| Mapped to | DCMES IPSMS e-GMS |

7.3 Metadata Element: Subject

| | |
|--------------------------------|--|
| Definition | A topic of the content of the resource |
| Obligation | Core |
| Purpose | Enable the user to search by the topic of the resource |
| Notes | <ul style="list-style-type: none"> • The value for subject should always carry a refinement. • At least one tag from the National Public Health Language (NPHL) Thesaurus should be added to reflect the main subject of the resource. • The tag will enable browsing from multiple sources. • Add uncontrolled keywords (“free text”) if this will help with the search. • By keeping keywords specific, information overload can be prevented. |
| Not to be confused with | <p>Type: The subject element indicates subject matter, rather than what the resource is, e.g. do not put “maps” as a subject element if the resource is a map, put this term as type.</p> <p>Coverage: Coverage contains information on the resources content in terms of place and time: it may be thought of as a sub-section of subject.</p> |
| Refinements | <p>NPHL Term: INIsPHO & AleHL will apply category tags drawn from the NPHL. At least one tag should be applied. As the NPHL is a hierarchical taxonomy, a tag which best describes the subject of the resource should be drawn from as far down the classification tree as possible. The NPHL tag is applied to the resource to provide specification of the subject. This may help to avoid retrieval of resources which lie outside the scope of the users’ desired subject. The Key words in this refinement should be drawn from the NPHL Thesaurus.</p> <p>Keyword – free text: When keywords are not available from NPHL, free text keywords can be entered in this refinement</p> <p>Process identifier: indicates a specific service or transaction, using an identifier taken from a recognised list.</p> <p>Programme: The broader policy programme to which the resource relates to directly.</p> <p>Project: Specific project to which the resource relates. A programme may be made up of a number of projects.</p> |
| Examples | <p>A policy document on heart disease.</p> <p>Subject.NPHL Terms: morbidity and mortality, circulatory, and coronary heart disease.</p> <p>Subject.Keyword: CHD, Heart Attack, Cardiovascular disease, Cardiovascular System</p> <p>Subject.Programme: National Health Promotion Strategy</p> <p>Subject.Project: “Healthy Hearts” programme</p> |
| Mapped to | <p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p> |

7.4 Metadata Element: Description

| | |
|--------------------------------|--|
| Definition | An account of the content of the resource |
| Obligation | Core |
| Purpose | To help the user decide if the resource fits their needs |
| Notes | <p>Should try to cover the following:</p> <ul style="list-style-type: none"> • Approach to the subject • Reason for production of the resource • Groups or organisations referred to • List of any key fields (database) or chapters • Key outcomes • Broad policy area • Level • Any other useful information <p>Keep this brief, and try not to repeat any information held in other metadata elements</p> |
| Not to be confused with | – |
| Refinements | <p>Abstract: a summary of the content of the resource</p> <p>Table of contents: a list of sub-units of the content of the resource</p> |
| Examples | <p><i>“Inequalities in Mortality 1989-1998: a report on All-Ireland mortality Data”</i>, Institute of Public Health</p> <p>Description: a report on mortality with emphasis on inequalities in health</p> |
| Mapped to | <p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p> |

7.5 Metadata Element: Publisher

| | |
|--------------------------------|--|
| Definition | An entity responsible for making the resource available |
| Obligation | Supplementary |
| Purpose | Enables users to find a resource published by a particular organisation or individual. |
| Notes | <ul style="list-style-type: none">• Publisher is used in its widest sense, even if no hard copy is available• This is the person or organisation that needs to be contacted in order to obtain permission to republish the resource or to obtain copies |
| Not to be confused with | Creator/Contributor: The creator, and to some extent the contributor, are responsible for the resource content. The publisher is the entity that would have to be contacted to obtain new copies, or to discuss copyright issues. |
| Refinements | - |
| Examples | <p><i>“Inequalities in Mortality 1989-1998: a report on All-Ireland mortality Data”</i>, Institute of Public Health</p> <p>Publisher: The Institute of Public Health in Ireland, 5th floor, Bishop’s Square, Redmond’s Hill, Dublin 2. Tel +353 1 478 6300. info@publichealth.ie</p> |
| Mapped to | DCMES IPSMS e-GMS |

7.6 Metadata Element: Contributor

| | |
|--------------------------------|---|
| Definition | An entity responsible for making contributions to the content of the resource |
| Obligation | Supplementary |
| Purpose | Enables users to retrieve a resource which has been contributed to by a particular person or organisation |
| Notes | <ul style="list-style-type: none">• May be a person or organisation• As with creator, it is best to use roles and give a complete hierarchy placing rather than individual contacts• As with creator, best to use generic rather than personal email contacts |
| Not to be confused with | Creator: The creator is the entity responsible for the intellectual or creative content of the resource, while the contributor played an important role but did not have primary or overall responsibility for the content. |
| Refinements | - |
| Examples | Report edited by Associate Director, Institute of Public Health Contributor: edited by Associate Director, Public Health info@publichealth.ie |
| Mapped to | DCMES IPSMS E-GMS |

7.7 Metadata Element: Date

| | |
|--------------------------------|---|
| Definition | A date associated with the life cycle of the resource |
| Obligation | Core |
| Purpose | To enable the user to find the resource by limiting the number of search hits according to a date, e.g. the date when the resource was made available |
| Notes | <ul style="list-style-type: none"> • Standard format must be used • This is the W3C standard²⁵: “yyyy-mm-dd” where “yyyy” is year, “mm” is month and “dd” is day, all in numbers • If time is required, use “hh:mm” where “hh” is hours and “mm” is minute |
| Not to be confused with | Coverage: Date refers to the resource itself, not the content which might be included in coverage. For example, the coverage of the “Inequalities in Mortality 1989-1998: a report on All-Ireland mortality Data”, Institute of Public Health is for the period 1989-1998, but the date would be when it was published. |
| Refinements | <p>Acquired: when resource was received into organisation</p> <p>Available: when resource will become or became available</p> <p>Created: when resource was created</p> <p>Cut-off: when the resource should no longer be added to or modified</p> <p>Closed: when capacity to store the resource as part of a collection was revoked</p> <p>Accepted: when resource was accepted, e.g. journal article</p> <p>Copyrighted: when copyrighted. Use if different from date created</p> <p>Submitted: when submitted, e.g. to journal</p> <p>Declared: when declared, filed or stored</p> <p>Issued: when formally issued</p> <p>Modified: when changed</p> <p>Next version due: when resource will be due to be superseded</p> <p>Updating frequency: how often resource is updated</p> <p>Valid: date (usually range) when resource is valid</p> |
| Examples | <p><i>“Inequalities in Mortality 1989-1998: a report on All-Ireland mortality Data”, Institute of Public Health, created May 2001</i></p> <p>Date.Created: 2001-5-01</p> |
| Mapped to | <p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p> |

7.8 Metadata Element: Type

| | |
|--------------------------------|---|
| Definition | The nature or genre of the content of the resource |
| Obligation | Core |
| Purpose | Enables user to find a particular type of resource |
| Notes | Values for “type” element are drawn from the Public Health Resource Type Encoding Scheme (PHRTES). Some of the values offer the option of a refinement. (see Appendix: A.1) |
| Not to be confused with | <p>Format: Format refers to the physical format, including the software application used to create it, whereas type refers to content.</p> <p>Subject: describes what the content is about whereas type describes what it is.</p> |
| Refinements | - |
| Examples | <p><i>“Inequalities in Mortality 1989-1998: a report on All-Ireland mortality Data”, Institute of Public Health</i></p> <p>Type: report.</p> |
| Mapped to | <p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p> |

7.9 Metadata Element: Format

| | |
|--------------------------------|---|
| Definition | The format that the resource is available in |
| Obligation | Supplementary |
| Purpose | Allows users to identify the specific format of each resource |
| Notes | <p>Format may not only refer to data types but also include format of reports. In terms of data types if the format is not in an easily recognisable form then the software or hardware requirements necessary will be stated.</p> <p>This element allows users to discriminate on the basis of the type of resource or the software required to view the resource.</p> |
| Not to be confused with | Type: Type refers to the nature or genre of the content of the resource |
| Refinements | Extent: The size of the datafile |
| Examples | <p><i>Database</i></p> <p>Vital Statistics from the CSO</p> <p>Format.extent: Comma Delimited Text File.49kb</p> <p><i>Word Document in .pdf</i></p> <p>Northern Ireland Teachers Health and Well Being Survey: Final Report</p> <p>Format: .pdf file.</p> |
| Mapped to | <p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p> |

7.10 Metadata Element: Identifier

| | |
|--------------------------------|--|
| Definition | Formal identifiers used for resources |
| Obligation | Supplementary |
| Purpose | Allows users to select items according to specific identifier, helps with further searches of external stores |
| Notes | It is recommended to use a formal identifications system such as ISBN or URLs. |
| Not to be confused with | Location: Location gives the physical location of a resource. |
| Refinements | <p>Bibliographic citation: a bibliographic reference for the resource</p> <p>ISBN: ISBN (International Standard Book Number) that is assigned to the resource</p> <p>URL: Website address that the resource can be found</p> |
| Examples | <p>For a resource with an automatically generated identifier</p> <p><i>Inequalities in mortality 1989-1998: A report on All-Ireland Mortality Data.</i></p> <p>Identifier: (ISBN) 0-9540010-2-8</p> <p>For a resource with a bibliographic citation, such as a journal article</p> <p>Identifier.Bibliographic citation: Martin, D., Williams H. (1992). Market area analysis and accessibility to primary health-care centres. Environment and Planning A, 24, 1009-1019.</p> |
| Mapped to | <p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p> |

7.11 Metadata Element: Source

| | |
|--------------------------------|---|
| Definition | A reference to the resource from which the current resource is derived. |
| Obligation | Supplementary |
| Purpose | Find resources within the content of a particular source |
| Notes | The resource could be derived from the source in part or in full. |
| Not to be confused with | Relation: Source is not needed if relation, for example the refinement “is version of”, is more appropriate. |
| Refinements | - |
| Examples | <i>For a report which uses a table from another source</i> Source: Table taken from Inequalities in mortality 1989-1998: A report on All-Ireland Mortality Data. |
| Mapped to | DCMES IPSMS e-GMS |

7.12 Metadata Element: Language

| | |
|--------------------------------|--|
| Definition | The language of the intellectual content of the resource |
| Obligation | Supplementary |
| Purpose | Enables users to choose resources based on the language used |
| Notes | A language code is used. Both the IPSMS and e-GMS use the ISO 639 standard which is available at http://www.loc.gov/standards/iso639-2 . The code for English is “en” and for Irish is “ga”. |
| Not to be confused with | - |
| Refinements | - |
| Examples | <i>For resource written in English</i> Language: en |
| Mapped to | DCMES IPSMS e-GMS |

7.13 Metadata Element: Relation

| | |
|--------------------------------|---|
| Definition | A reference to a related resource |
| Obligation | Supplementary |
| Purpose | Allows users to find related resources that may be produced by the same organisation or a different organisation but coming from the same source (e.g. publications from the same survey) |
| Notes | <ul style="list-style-type: none"> • This element is invaluable for linking items which have multiple parts, for example a series of resource on the same topic, waves of a longitudinal survey or versions of a document. • The refinements of this element refer to the types of relationships that may exist. It is recommended that these be used where possible to specify the relation. |
| Not to be confused with | Source: Source is where the content of the resource is from |
| Refinements | <p>Is part of: The resource is part of another resource. If the resource is part of a collection of multiple resources then it “is part of”.</p> <p>Is version of: If a resource has been updated then it is a version of the original resource</p> <p>Has version: If the resource has another version it is listed here</p> <p>Is format of: If one resource is derived from another by reformatting</p> <p>Is based on: If one resource is an interpretation or adaption of another</p> <p>Is basis for: If the resource has another based on it</p> |
| Examples | <p><i>Waves of a survey</i></p> <p>Survey of Lifestyle and Nutrition, 2003 is based on Survey of Lifestyle and Nutrition, 1999</p> <p>Relation. Is based on: Survey of Lifestyle and Nutrition, 1999</p> |
| Mapped to | <p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p> |

7.14 Metadata Element: Coverage

| | |
|--------------------------------|---|
| Definition | The extent or scope of the resource |
| Obligation | Supplementary |
| Purpose | Provides consistent information on dates, times, places, other attributes of the resource scope that users can easily interpret. |
| Notes | A value for this element is usually refined, see below |
| Not to be confused with | <p>Date: Coverage does not refer to its creation date but simply the time period covered and any other changes.</p> <p>Location: Location refers to the physical location of the resources (e.g. CSO website) and has nothing to do with the spatial coverage</p> |
| Refinements | <p>Region: This refinement covers geographical aspect using INIsPHO's encoding scheme (see Appendix: A.2).</p> <p>Spatial-other: This refinement deals with other aspects of coverage. Spatial coverage includes towns, counties, health boards, provinces or other such spatial groupings.</p> <p>The lowest level of spatial coverage is also given. Spatial can also include groups of hospitals, GPs or other health service providers.</p> <p>Temporal: end dates and beginning dates. Where possible dates should be given as yy-mm-dd (see DATE). If not then yyyy-mm or yyyy will suffice. The end date and the beginning should be separated by/.</p> <p>Disaggregation: refers to the attributes by which resource can be disaggregated. Usually applied to datasets.</p> <p>Values for this refinement are: "age"; "gender"; "ethnicity"; and "social". "Social" is applied wherein any marker for social status (occupation, educational achievement, social class etc) is available.</p> |
| Examples | <p><i>For resource based on a study carried out in the border health boards</i></p> <p>Coverage.Spatial: CAWT</p> <p><i>For a resource with spatial, temporal and disaggregation coverage such as</i></p> <p><i>Inequalities in mortality 1989-1998: A report on All-Ireland Mortality Data.</i></p> <p>Coverage.Spatial: All-Ireland, Health Board</p> <p>Coverage.Temporal: 1989/1998</p> <p>Coverage.Disaggregation: age; gender; social</p> |
| Mapped to | <p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p> |

7.15 Metadata Element: Rights

| | |
|--------------------------------|--|
| Definition | Information about rights held in and over the resource |
| Obligation | Core |
| Purpose | Indicates if the user has the right to see, access or copy the resource |
| Notes | The rights are usually defined by the provider of the resource. Where possible it is indicated if there is public access available or who to contact to gain access to the resource if it is not held internally in INIsPHO. |
| Not to be confused with | - |
| Refinements | - |
| Examples | <i>Rights to Hospital In-Patient Enquiry (HIPE) data</i> Rights: Requests can be made from the HIPE Unit at the ESRI and the Department of Health and Children |
| Mapped to | DCMES IPSMS e-GMS |

Appendix: Supporting materials

The following documents, standards and encoding schemes support the INIsPHO & AleHL Metadata Standard, Version 2.0.

- DCMES, available at <http://dublincore.org/documents/dcmi-terms/>
- NPHL, available at <http://www.nphl.nhs.uk>
- ISO 639 standard language code, available at <http://www.loc.gov/standards/iso639-2>
- Public Health Resource Type Encoding Scheme, which is set out below

Table A.1: Public Health Resource Type Encoding Scheme (PHRTES)

| Type | Refinements | Examples of use |
|-------------------|---------------|---|
| Dataset | [static]/none | Raw, disaggregated data, such as a census or the Health Survey for England |
| | dynamic | NESSTAR (On-line datasets via data archive) On-line pivot tables |
| Collection | none | A group or collection of related resources of any type, e.g. Tables, People, News, Events about a topic. Examples of what this type could be used for include: <ul style="list-style-type: none"> • Overview, of work in progress, planned work etc. • Meeting details which include agendas, attendees, presentations, minutes etc. • A collection of survey information, such as the questionnaire, the data gathered and the published report. |
| | library | A Specialist Library from NeLH |
| | project | A group of resources covering projects that are either completed, ongoing, planned or just potential |
| Table | [static]/none | Aggregated data in a table, such as where small numbers are suppressed |
| | dynamic | A database of OLAP tables which can be used to generate further tables. NESSTAR generated cubes |
| | manipulable | Any spreadsheet |
| Map | [static]/none | Simple map not associated with data, such as a jpg file |
| | manipulable | The is used with an on-line GIS system, such as Geo Wise |
| Chart | [static]/none | Simple graphical chart with no directly linked underlying data |
| | manipulable | Chart with a spreadsheet which can have its format or underlying data changed |

Table A.1: Public Health Resource Type Encoding Scheme (PHRTES) (cont)

| Type | Refinements | Examples of use |
|--------------|-------------------|--|
| Report | none | Any written document, not covered by refinements. |
| | meeting | Documents related to the agendas, proceedings or minutes of a meeting or conference |
| | practice | Evidence of experience of success and failure |
| | research | Peer reviewed evidence, dissertations, thesis or peer reviewed journal article |
| Discussion | [topic]/none | Any discussion topic |
| | forum | Any discussion forum |
| Presentation | none | A PowerPoint presentation |
| Method | none | Any resource used to describe a means or manner of procedure, e.g. "Health Impact Assessment", "Health Equity Audit" or "Standardizing Data" |
| Event | none | Details of any event |
| News | none | Any new article which is stored in its own right (i.e. not another resource type) Includes newsletters |
| Contact | [individual]/none | Any individual person |
| | group | A group of individuals who can be collectively grouped for descriptive or distribution purposes. For example, All Directors of Public Health' or 'Drug action team' |
| | organisation | Any organisation, private or public |
| Website | none | Any website address which is not usually the link to a definitive organisation's website (this is normally part of the metadata for the organisation). E.g. a link to a particular topic area in a large complex website, such as: http://www.nhs.uk/localnhsservices/wicentres/default.asp |
| Media | audio | Any stored audio media |
| | video | Any stored video media |
| | image | Any representation of a graphic or photograph (but not maps or charts unless they do not represent any meaningful information) |
| form | none | Any stored form |
| | questionnaire | Any resource used for survey type questions |
| standard | none | Any resource defined as a standard. These will normally be internationally or nationally recognised standards or those recognised specifically by professional groups |

Source: Published by the Association of Public Health Observatories (APHO)

Table A.2: INIsPHO's Region Encoding Scheme

| | Region |
|---------------------------------------|---------------------|
| METADATA ELEMENT: Coverage | International/Other |
| | Europe |
| | Continental Europe |
| | United Kingdom |
| | England |
| | Scotland |
| | Wales |
| | All Ireland |
| | Northern Ireland |
| | Republic of Ireland |

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