

Metadata standards for Ireland and Northern Ireland's Population Health Observatory

Version 1.0

Prepared by Paul Kavanagh, Kevin P Balanda and Niamh Shortt.
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Abbreviations

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 Standard
HDA	Health Development Agency
HDAT	Health Development Agency Public Health Information Thesaurus
INIsPHO	Ireland and Northern Ireland's Population Health Observatory
IPH	Institute of Public Health in Ireland
IPSMS	Irish Public Service Metadata Standard
NeLH	National electronic Library for Health
NPHL	National Public Health Language
PHeL	Public Health electronic Library
PHITS	Public Health Information Tagging Standard
PHO	Public Health Observatory

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 available on the island. It does this by identifying, collating and documenting information resources needed to support evidence-based public health policy and practice. The observatory's website (<http://www.inispho.org>) is a key element of its strategy to making these resources more widely available.

Metadata ("data about data") is a term describing the set of details used to catalogue a knowledge resource such as a book's title, its creator or its subject. Metadata standards define what details are to be recorded and how they are to be recorded. They are vital pieces of the infrastructure enabling 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 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. They also incorporate the National Public Health Language (NPHL), a controlled language for public health being developed in Britain.

While the observatory's metadata standards were developed to support its websites, the aim has been to align them with 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

Executive Summary

Ireland and Northern Ireland's Population Observatory (INIsPHO) has been established in the Institute of Public Health in Ireland. The observatory aims to increase awareness, access and use of population health information on the island.

For knowledge to be mobilised effectively and efficiently, information 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 a structured set of details which can be attached to an information resource in order to facilitate storage, access and usage. Examples of these details include resource "title", its "creator" and "subject". The application of metadata to the resources attached to INIsPHO will help ensure the knowledge they contain is incorporated into public health practice.

In developing a metadata standard 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.

In terms of structure, the metadata standards development in Ireland, the UK and Europe all follow the framework of the Dublin (Ohio) Core Metadata Element Set (DCMES). A decision was made to adapt INIsPHO metadata standards that are consistent with these. This will allow INIsPHO to interoperate with its main partners.

The subject of resources in INIsPHO 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. For this purpose, the Public Health Information Tagging Standard and the Health Development Agency Public Health Information Thesaurus have been adopted by INIsPHO as standards for encoding the subject of resources. These terminologies are merging to form a National Public Health Language, and INIsPHO will continue to align itself with this development.

After describing its development, this document contains a detailed description of INIsPHO Metadata Standard, Version 1.0.

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 to more strongly base planning and decision making on evidence². 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 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.

2. What are metadata?

Public health observatories (PHOs) can help harness this information explosion through production and dissemination of intelligence to inform policy⁴. The information 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 an information 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 book’s 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 knowledge contained within information resources cannot be effectively activated for use in 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 information resources easier to manage and find. By describing information 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 information 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 match 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 policy⁴. 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 knowledge mobilisation from the collected information resources. Thus, metadata is a basis to the knowledge management which is required to promote the translation of evidence and information into practice.

5. Developing metadata standards for INIsPHO

5.1 Promoting interoperability

From recognising the value of applying metadata to information resources, the question of how this is best achieved arises.

INIsPHO could design its own metadata system: what information should be attached to information 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 user⁷. There are an ever increasing number of information 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, information resources could be distributed across a number of departments within a government. In addition, the information 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 information 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. If INIsPHO is to facilitate access to external stores of information, or if its internal store is 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.

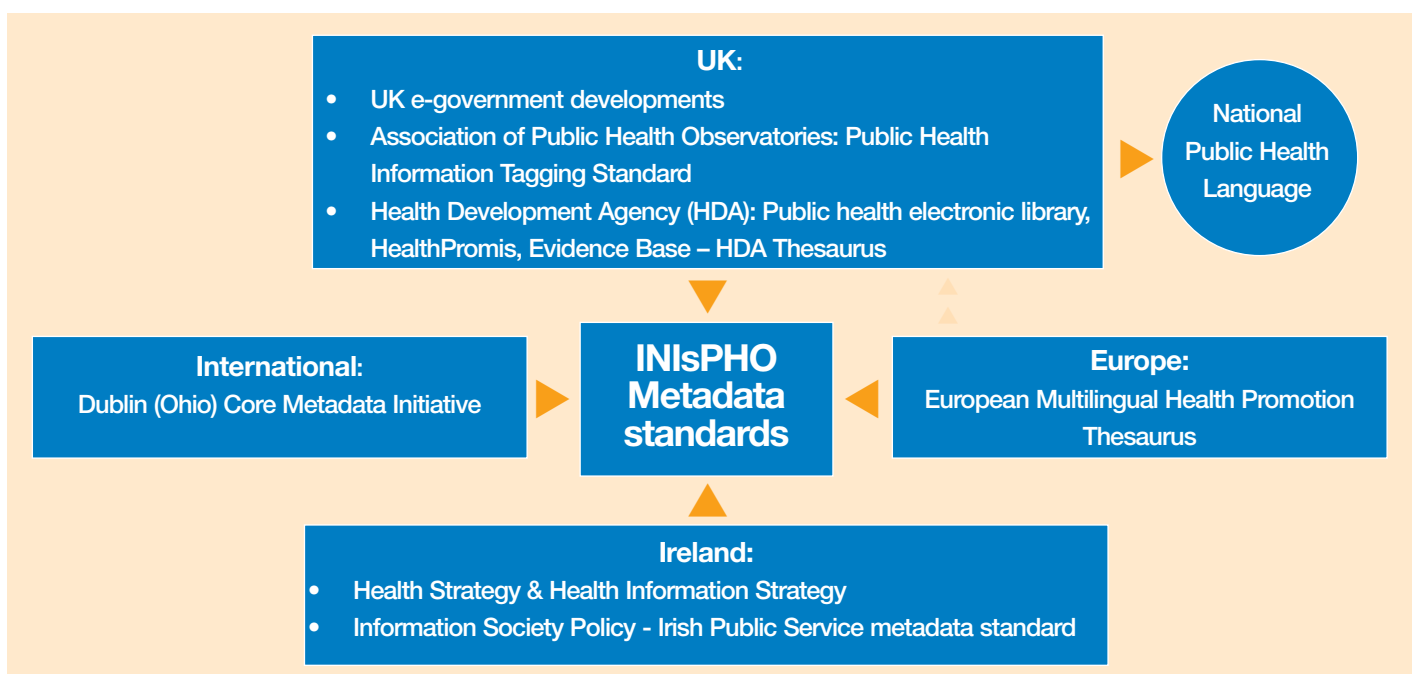
In the development of a metadata standard for INIsPHO, it is therefore desirable that it promotes interoperability between the observatory and its potential partners. This approach will increase the power of INIsPHO to mobilise knowledge for its users. In

addition, value will be 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 cultural 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 were sought. Figure 1 presents a map of the areas which were examined.

Figure 1: Map of potential drivers for INIsPHO Metadata Standard



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.¹¹ 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 Public Health Electronic Library¹⁶ (PHeL).

5.5.1 The Public Health Information Tagging Standard

Within the Association of Public Health Observatories, the Eastern Regional PHO has developed a system, called the Public Health Information Tagging Standard (PHITS), in order to facilitate the storage and retrieval of public health resources.¹⁷

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

Table 3: Main Classification Headings of the Public Health Information Tagging Standard

Classification Heading
Persons (Populations)
Time
Place
Diseases
Services
Health determinants
Policy

Source: adapted from PHITS¹⁷

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 current version of PHITS is Version 1.4. The standard is updated in line with requests made by users. The INIsPHO website has a facility, linked to “requests for change” at www.phits.org 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.

5.5.2 Health Development Agency Public Health Information Thesaurus

The Public Health Electronic Library¹⁶ (PHeL) is developed by the Health Development Agency (HDA) in the UK on behalf of the Department of Health. It is a specialist library of the National Electronic Library for Health (NeLH)¹⁸. It is a “one stop shop” for information relating to public health and aims “to provide knowledge on how to promote health, prevent disease and reduce health inequalities”¹⁶.

The library uses a controlled vocabulary, the Health Development Agency Public Health Information Thesaurus (HDAT)¹⁹, to describe the subject of resources contained in it and to facilitate searching on the site. The thesaurus is based on the “European Multilingual Thesaurus on Health Promotion in 12 Languages”²⁰ which was supported by the European Commission and is also used in other Health Development Agency information resource collections: Evidence Base²¹ and HealthPromis²². 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 information resources which have been tagged by a different word than the one used in the search procedure.

5.5.3 The National Public Health Language

PHITS and HDAT share a common aim in that they try to optimise the storage and retrieval of public health information resources. In recognition of this shared aim, and proceeding from efforts to “join up” public health activity in the UK, a National Public Health Language (NPHL)²³ has been constructed which draws on these resources to provide a common language for describing information resources used in public health.

5.5.4 European Developments

European developments in the area of metadata were also examined, including the “Cores” project, which aims to encourage sharing of metadata semantics²⁴, and the “European Multilingual Thesaurus on Health Promotion in 12 Languages”²⁰.

6. Ongoing Developments

The INIsPHO Metadata Standard, Version 1.0 was developed at a time when some of its principal drivers, vis-à-vis PHITS and HDAT, were merging to form the new National Public Health Language (NPHL). INIsPHO will link with this emerging standard in the future.

The provision of feedback on this standard will keep it vital and ensure that it continues to meet the needs of INIsPHO users in the future. INIsPHO users will also be afforded the opportunity to give feedback on the current version of the INIsPHO Metadata Standards and make suggestions on its future development. This will be done through INIsPHO's website. Feedback is requested in four areas:

- The form and content of the metadata element set
- The use of PHITS for tagging "category" refinement of the "subject" element
- The use of HDAT for selecting "keyword" refinement of the "subject" element
- The use of the Public Health Type Encoding System for describing the "type" element.

7. The INIsPHO Metadata Standard, Version 1.0

The metadata standards used for Ireland and Northern Ireland's Population Health Observatory (INIsPHO) 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 to the INIsPHO standard, 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 within INIsPHO and also allow it 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 Metadata Standard, Version 1.0. The DCMES has undergone some minimal adaptation for use in INIsPHO. Mandatory metadata elements will form "core" metadata at the observatory, and any optional elements will be called "supplementary".

Table 4: INIsPHO Metadata Standard, Version 1.0

Metadata Element	Obligation	Refinements
Title	Core	Alternative title
Creator	Core	-
Subject	Core	PHITS categories
		Keyword – NPHL
		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	Supplementary	-
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	Supplementary	-

Adapted from DCMI¹²



The INIsPHO 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 PHITS, and where possible it is recommended that values for keyword refinement be drawn from the HDAT.
- **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	<p><i>Inequalities in mortality. A report on All-Ireland mortality data.</i></p> <p>Creator: Institute of Public Health in Ireland, info@publichealth.ie</p>
Mapped to	<p>DCMES</p> <p>IPSMS</p> <p>e-GMS</p>

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 include a refinement. • At least one tag from the Public Health Information Tagging Standard (PHITS) should be added to reflect the main subject of the resource. • The tag will enable browsing from multiple sources. • As PHITS terms may be broad, keywords may be added for refinement. These should be drawn from a controlled vocabulary where possible, and the National Public Health Language should be used. • 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>PHITS categories: INIsPHO will apply category tags drawn from PHITS. At least one tag should be applied. As PHITS 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.</p> <p>Keyword - NPHL: These may be applied to the resource to provide further specification of the subject. This may help to avoid retrieval of resources which lie outside the scope of the users’ desired subject. The keywords in this refinement should be drawn from NPHL.</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 recognized 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. PHITS categories: 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	Supplementary
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	Core if applicable
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	Supplementary
Purpose	Enables user to find a particular type of resource
Notes	<p>Values for “type” element are drawn from the Public Health Resource Type Encoding Scheme. Some of the values offer the option of a refinement. This is provided in supporting documents.</p> <p>Format: refers to the physical format, including the software application used to create it, whereas type refers to content.</p>
Not to be confused with	Subject: Subject describes what the content is about whereas type describes what it is.
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	DCMES IPSMS e-GMS

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 a 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>
Mapped to	<p>Format: .pdf file.</p> <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	Bibliographic citation: a bibliographic reference for the resource ISBN: ISBN (International Standard Book Number) that is assigned to the resource URL: Website address that the resource can be found
Examples	For a resource with an automatically generated identifier Inequalities in mortality 1989-1998: A report on All-Ireland Mortality Data. Identifier: (ISBN) 0-9540010-2-8 For a resource with a bibliographic citation, such as a journal article 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.
Mapped to	DCMES IPSMS e-GMS

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 adaptation 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: Relation: Coverage

Definition	The extent or scope of the resource
Obligation	Not mandatory but recommended
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.</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> Coverage.Spatial: CAWT</p> <p><i>For a resource with spatial, temporal and disaggregation coverage such as Inequalities in mortality 1989-1998: A report on All-Ireland Mortality Data.</i> Coverage.Spatial: All-Ireland, Health Board Coverage.Temporal: 1989/1998 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	Supplementary
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 Metadata Standard, Version 1.0:

- DCMES, available at <http://dublincore.org/documents/dcml-terms/>
- PHITS, available at www.phits.org
- NPHL, available at <http://www.nphl.nhs.uk>
- Public Health Resource Type Encoding Scheme, which is set out below

Table A.1: Public Health Resource Type Encoding Scheme

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.
	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 (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)

Source: Personal Communication, Eastern Regional Public Health Observatory

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Notes