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NHS dictionary of medicines and devices

Requirement Specification for SCCI0052

SCCI Standardisation Committee for Care Information

The Department of Health has approved this information standard (SCCI0052) for publication under section 250 of the Health and Social Care Act 2012.

Assurance that this information standard meets the requirements of the Act and is appropriate for the use specified in the specification document has been provided by the Standardisation Committee for Care Information (SCCI), a sub-group of the National Information Board.

This information standard comprises the following documents:

- Requirements Specification
- Implementation Guide.

An Information Standards Notice (SCCI0052 Amd 13/2013) has been issued as a notification of use and implementation timescales. Please read this alongside the documents for the standard.

The controlled copies of these documents can be found on the NHS Digital website. Any copies held outside of that area, in whatever format (e.g. paper, email attachment), are considered to have passed out of control and should be checked for currency and validity.

Date of publication: 7 April 2017

Glossary of Terms

Term	Abbreviation	What it stands for
Actual Medicinal Product	AMP	An Actual Medicinal Product (AMP) is a single dose unit of a finished dose form (unless the product is presented as a continuous dosage form), attributable to an identified supplier that contains a specified amount of an ingredient substance. It describes an actual product which is known to have been available linked to the name of a particular supplier, for example 'Aspirin 300mg caplets (The Boots Company Plc) '.
Actual Medicinal Product Pack	AMPP	An Actual Medicinal Product Pack (AMPP) is the packaged product that is supplied for direct patient use or from which AMPs are supplied for direct patient use. The AMPP describes an actual product which is known to have been available linked to both the name of a particular supplier and information on the pack size of the product, for example 'Aspirin 300mg caplets (The Boots Company Plc) 32 tablet'. It may contain multiple components each of which may or may not be an AMPP in their own right.
Anatomical Therapeutic Chemical Classification	ATC	The Anatomical Therapeutic Chemical (ATC) Classification System is used for the classification of drugs and is controlled by the WHO (World Health Organisation) Collaborating Centre for Drug Statistics Methodology (WHOCC). The main purpose of the ATC system is as a tool for capturing and presenting drug utilisation statistics with the aim of improving drug use both nationally and internationally. Other uses of the ATC classification system are not endorsed.
Arm's Length Body	ALB	Arm's-length bodies are public bodies established to carry out specific central government functions at arm's length from ministers.
British National Formulary	BNF	The British National Formulary (BNF) is a joint publication of the British Medical Association and the Royal Pharmaceutical Society. The BNF aims to provide a quick reference for key information on the selection, prescribing, dispensing and administration of medicines. Medicines generally prescribed in the UK are covered. Little or no information is included on medicines promoted for purchase by the public.
Commission on Human Medicines	CHM	An advisory body that provides advice to ministers and licensing authorities on matters relating to human medicinal products. This body combines the responsibilities previously met by the Committee on Safety of Medicines and Medicines Commission
Commercial Medicines Unit	CMU	The Commercial Medicines Unit is part of the Procurement Investment and Commercial Division of the Department of Health. The focus of the work of the CMU is on strategic supply management and procurement of medicines for use in secondary care.
Commercial off the shelf product	COTS	In this instance a commercially available product that may be purchased from a licensed company with maintenance and support options available compared to an in-house development.
Defined Daily Dose	DDD	The basic definition of the defined daily dose (DDD) is: The DDD is the assumed average maintenance dose per day

		for a drug used for its main indication in adults. A DDD will only be assigned for drugs that already have an ATC code.
dictionary of medicines and devices	dm+d	A terminological resource containing unique identifiers and associated textual descriptions for representing medicines and medical devices used within the UK.
dm+d identifier namespace		Namespace – is a number that is issued to an IHTSDO (owners of SNOMED CT) Member or Affiliate that can be used to create new and unique SNOMED CT identifiers in that realm. Each Member or Affiliate may have one or more namespaces. The namespace allocated to the UK (through the member organisation UKTC) for use for medicines and medicines related components is 100001. This number then forms part of the SNOMED CT Concept identifier to denote provenance of that component.
Dosage instructions		The information supporting the prescribed product in order for it to be correctly administered, for example the dose, the route, frequency of administration and duration of treatment.
Dose-based prescribing		In this type of prescribing, the prescriber does not select a product but rather a generic substance (for example paracetamol) equivalent to a VTM, together with a dose (1000 mg), route (oral) and frequency of administration (4 times a day) to produce an instruction to administer a drug to a patient. In most cases where dose-based prescribing is done, the instruction will be carried out by a healthcare professional, typically a nurse, who will select and prepare the medicinal product to be administered, thereby selecting a form and strength appropriate to the patient's conditions (for example choosing a suspension rather than tablets if the patient is having difficulty swallowing). Dose based prescribing is typically undertaken in secondary care.
Drug Tariff		The Drug Tariff provides information on what will be paid to contractors for NHS Services including both reimbursement (for example the cost of drugs and appliances supplied against an NHS Prescription form) and remuneration (for example professional fees/allowances which are paid as part of the NHS pharmacy contract). It is produced monthly by the Pharmaceutical Directorate of the NHS Business Services Authority, NHS Prescription Services on behalf of the Department of Health. Paperback copies are supplied primarily to pharmacists and doctors surgeries. It is also available in electronic format.
European Medicines Agency	EMA	The European Medicines Agency (EMA) is a European Union agency for the evaluation of medicinal products.
Electronic Prescription Service	EPS	The Electronic Prescription Service (EPS) is a service used in England that enables prescribers in primary care such as GPs to send prescriptions electronically to a dispenser (such as a pharmacy) of the patient's choice. The system also supports electronic reimbursement of prescriptions. For the prescribing, dispensing and reimbursement of primary care medicines, EPS uses dm+d identifiers and descriptions.
Global Trade Item Number	GTIN	An identifier for trade items developed by GS1. Such identifiers are used to look up product information in a database (often by inputting the number through a bar code

		scanner pointed at an actual product). The uniqueness and universality of the identifier is useful in establishing which product in one database corresponds to which product in another database, especially across organizational boundaries.
GS1 UK		GS1 Is the independent Not for profit organisation that sets and maintains the GTIN standard and other supply chain standards. GS1 UK represents UK interests
Health and care organisations		Organisations involved in the delivery of health and care, including Arm's Length Bodies.
Health and Social Care Information Centre	HSCIC	In this context, organisation assuming the responsibility for former NHS Connecting for Health products and services. See also NHS Digital
International Healthcare Terminology Standards Development Organisation	IHTSDO	IHTSDO is the not for profit organisation that owns and maintains SNOMED CT®
International Nonproprietary Name	INN	International Nonproprietary Names are selected in close collaboration with national nomenclature commissions to provide a unique name that is published by the World Health Organisation
Medical Devices		From the MHRA – Borderline between medical devices and medicinal products, a medical device is: 'Any instrument, apparatus, appliance, material or other article, whether used alone or in combination, including the software necessary for its proper application intended by the manufacturer to be used for humans beings for the purpose of: • Diagnosis, prevention, monitoring, treatment or alleviation of disease, • Diagnosis, monitoring, treatment, alleviation of or compensation for an injury or handicap, • Investigation, replacement or modification of the anatomy or of a physiological process, • Control of contraception, and which does not achieve its principal intended action in or on the human body by pharmacological, immunological or metabolic means, but which may be assisted in its function by such means.'
Medicine		From the MHRA – Borderline between medical devices and medicinal products, a medicine is: 'Any substance or combination of substances which may be used in or administered to human beings either with a view to restoring, correcting or modifying physiological functions by exerting a pharmacological, immunological or metabolic action, or to making a medical diagnosis.'
Medicines & Healthcare products Regulatory Agency	MHRA	The government agency that is responsible for ensuring that medicines and medical devices work, and are acceptably safe. The MHRA is an executive agency sponsored by the Department of Health.
NHS Business Services	NHSBSA PS	The NHSBSA Prescription Services works in partnership with

Authority Prescription Services		NHS Digital in populating and maintaining dm+d. It is also the organisation responsible for the reimbursement of medicines prescribed in primary care.
NHS Digital		NHS Digital is the trading name of the Health and Social Care Information Centre
National Patient Safety Agency	NPSA	An Arm's Length Body of the Department of Health whose remit was to identify patient safety issues and find appropriate solutions. The key functions of this organisation were transferred to the NHS Commissioning Board (now called NHS England) in June 2012
Product-based prescribing		In this type of prescribing, prescriptions are created by selecting a single medicinal product (equivalent to VMP or AMP) and with the rest of the prescription then expressed in terms of that product, for example paracetamol *500mg tablets 2* to be taken orally 4 times a day. In this case the instruction cannot be varied in favour of a suspension by the pharmacist. Product based prescribing is typically (but not exclusively) undertaken in primary care.
Specials		Specials are individually prepared unlicensed formulations of existing drugs made for a specific patient. Medicines legislation requires that medicinal products are licensed before they are marketed in the UK. However, some patients may have special clinical needs that cannot be met by licensed medicinal products. So that these special needs may be met, the law allows manufacture and supply of unlicensed medicinal products (commonly known as 'specials') subject to certain conditions.
Summary Care Record	SCR	The SCR is designed to provide a summary of clinical information which would be deemed useful in the event of urgent or emergency care for a patient, particularly when other sources of information may not be readily available. A patient's SCR contains details of medications, adverse reactions and allergies. Where the medications are provided in coded format, they are given dm+d identifiers.
Systematized Nomenclature of Medicine - Clinical Terms	SNOMED CT®	SNOMED CT is a comprehensive international healthcare terminology. SNOMED CT has been adopted as the standard clinical terminology for the NHS in England. SNOMED International manages and maintains SNOMED CT internationally. The UK Terminology Centre manages and maintains SNOMED CT in the UK.
Technology Reference-data Update Distribution Service	TRUD	The Technology Reference-data Update Distribution Service provides a mechanism to distribute reference-data including dm+d to interested parties. This is the preferred distribution method and is hosted by NHS Digital. All registration requests for the TRUD Service should be done through isd.hscic.gov.uk
United Kingdom Terminology Centre	UKTC	The UK Terminology Centre is responsible for the UK management of SNOMED CT, Read codes and other healthcare terminology products and clinical classifications. www.snomed.org/member/united-kingdom

Virtual Medicinal Product	VMP	A Virtual Medicinal Product (VMP) is an abstract concept representing the properties of one or more clinically equivalent Actual Medicinal Products, where clinical is defined as relating to the course of a disease. The Virtual Medicinal Product describes the generic title for a product including the form and strength, for example ‘Aspirin 300mg tablets’.
Virtual Medicinal Product Pack	VMPP	A Virtual Medicinal Product Pack (VMPP) is an abstract concept representing the properties of one or more quantitatively equivalent AMPPs. It describes the generic title for a generic or proprietary product pack which is known to have been available. The description includes the pack size, for example ‘Aspirin 300mg tablets 32 tablet’.
Virtual Therapeutic Moiety	VTM	A Virtual Therapeutic Moiety (VTM) is the abstract representation of the substance(s), formulated as a medicinal product, intended by an authorising health care professional for use in the treatment of the patient. It is the abstract conceptual representation of the material defining the prescriber’s therapeutic intent, divorced from formulation, dose or strength; for example ‘Aspirin’.
EXtensible Markup Language	XML	In computing, Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. www.w3.org/TR/REC-xml

Contents

1 Overview

1.1 Summary

Standard	
Standard Number	SCCI 0052
Title	NHS dictionary of medicines and devices (dm+d)
Description	This standard is a dictionary for medicines licensed in the UK. The standard uses the dm+d product. The scope of the standard is currently for the National Health Service in England. The standard comprises: a) A model of the components required to represent a medicine used in patient care, along with additional components specific to the reimbursement process used in primary care. b) Content that is maintained and distributed according to approved policies and processes. c) A governance structure that supports requirements for an evolving but stable set of implementable terminology products. d) Identification of medicines within the supply chain by the inclusion of GS1 GTIN codes where known. The scope of the standard in terms of content is for medicines only. Medical devices are currently excluded from the standard. The standard's primary purpose is to support interoperability. Therefore electronic systems that exchange or share information about medicines relating directly to a patients care must adhere to the standard by using dm+d identifiers and descriptions when transferring information. Systems that record and communicate information not relating directly to patient care i.e. secondary uses are also required to adhere to the standard where benefits in using common identifiers and descriptions to support interoperability and the sharing of data can be realised. Benefits may also be realised in using dm+d identifiers and descriptions in elements of supply chain management and research. However it is currently not a requirement of the standard that dm+d identifiers and descriptions are utilised in these settings but desirable. The scope of the standard excludes the labelling of dispensed medicines. Labelling of dispensed medicines should conform to the NPSA (National Patient Safety Agency) guidance on medication labelling. dm+d conforms to these guidelines and provides abbreviated names for medicines and devices in accordance with them. dm+d is not a classification system and is therefore not intended to replace ATC and BNF classifications. Use of this standard depends on the specific clinical and business requirements and the technical context. Not all components of the model will be required to support each use case. dm+d may be used directly in a system and/or via distinct mappings with another drug data resource. dm+d is updated every week and is supplied as data files for use within information systems.

Applies to	Health and Care Organisations purchasing systems that support recording and communication of information about medicines. Health and Care Organisations using information about medicines for purposes such as reimbursement, pharmacovigilance, drug utilisation and elements of the supply chain.
Impacts upon	Suppliers of IT systems that support recording and communication of information about medicines used in patient care including, but not limited to: e-prescribing, administration, dispensing, medication history, reimbursement. Pharmaceutical companies.

Release	
Release Number	Amd 13/2013
Release Title	Conversion under the Health and Social Care Act 2012
Description	Uplift of ISB 0052 Dictionary of Medicines and Devices (dm+d) fundamental standard to SCCI0052 fundamental standard.
Implementation Completion Date	The date for the implementation completion of the full standard remains the same as ISB 0052 Amd 57/2010. This is 30 June 2017.

1.2 Controlled Documents

Ref #	Reference	Title
1	Release 2 Version 3.0 Editorial policy	NHS Dictionary of Medicines and Devices Editorial Policy
2	Release 2.3 Version 3 Data Model	NHS Dictionary of Medicines and Devices (dm+d) Data Model
3	Release 2 Technical Specification of Data Files	NHS Dictionary of Medicines and Devices (dm+d) Technical specification of data files for release 2 of the Dictionary of Medicines and Devices (dm+d)

1.3 Guidance

Ref #	Reference	Title
4	Primary Care Implementation Guidance	dm+d Implementation Guide (Primary Care)
5	Secondary Care Implementation Guidance	dm+d Implementation Guide (Secondary Care)

1.4 Related Standards

Ref #	Title
ISB 0108	AIDC: Automatic Identification and Data Capture
	Anatomical Therapeutic Chemical (ATC) classification system
ISB 1582	Electronic Yellow Card Reporting
SCCI0160	Clinical Risk Management: its Application in the Deployment and Use of Health IT

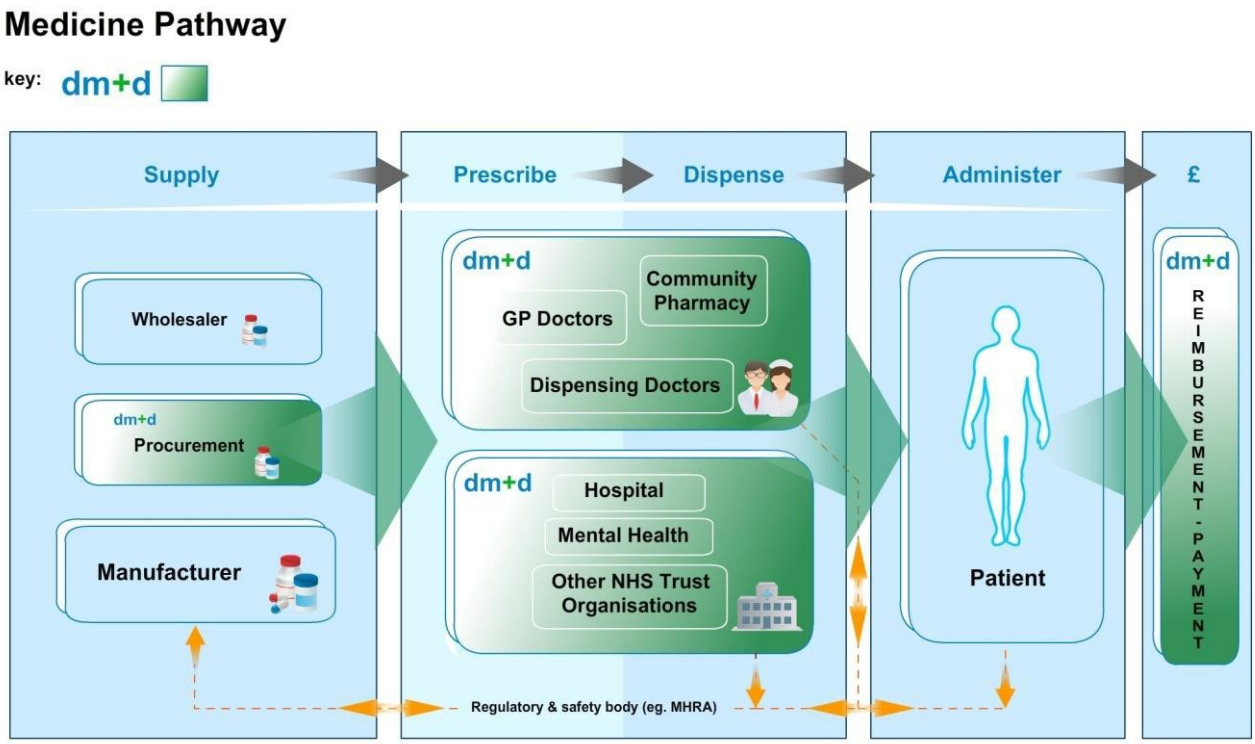
	Systems
SCCI0129	Clinical Risk Management: its Application in the Manufacture of Health IT Systems
ISB 1552	Read Clinical Terms Version 3
ISB 1553	Read Version 2
	RxNorm
SCCI0034	SNOMED CT
ISB 1533	Systemic Anti-Cancer Therapy Data Set
	The Medical Dictionary for Regulatory Activities (MedDRA)
SCCI1570	HIV and AIDS Reporting System (HARS)

2 Introduction

2.1 Overview

dm+d is a dictionary containing unique identifiers and associated textual descriptions for medicines and medical devices. It has been developed for use throughout the NHS (in primary and secondary care) as a means of uniquely identifying the specific medicines or devices used in the diagnosis or treatment of patients. Other dictionaries are used outside of the English NHS and these include RxNorm in the United States, AMT (Australian Medicines Terminology) in Australia and G-Standaard in the Netherlands.

This section below provides a simple overview of the model and attributes associated with dm+d. For a full list of detailed attributes please refer to the (Ref #2) dm+d Data Model.



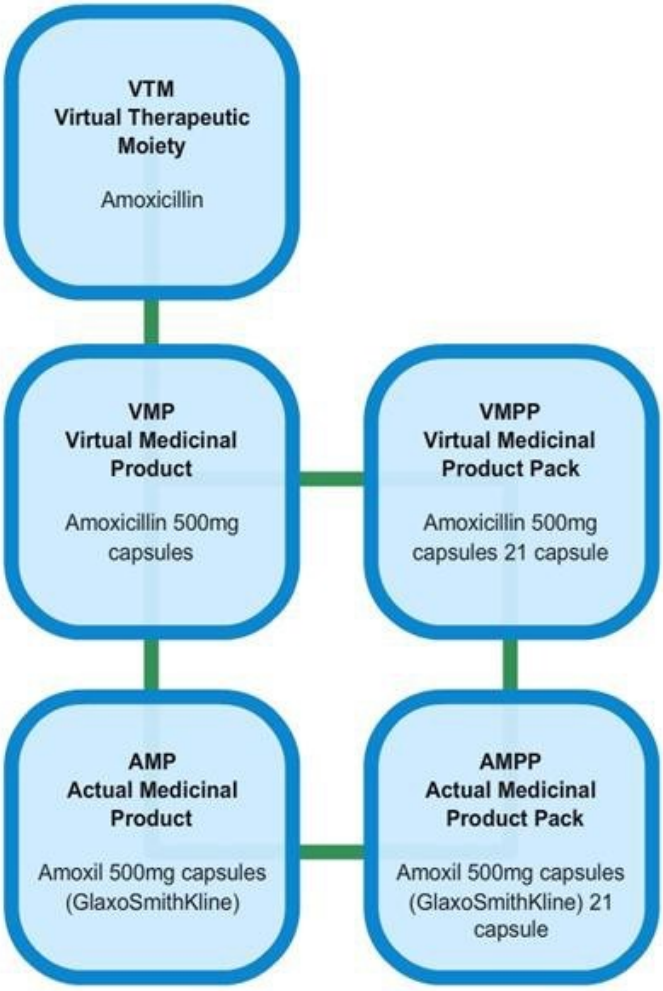
Use of the unique identifiers in dm+d enables interoperability between diverse clinical systems ensuring safe and reliable exchange of information.

The standard comprises: the structure (model); editorial rules; governance and maintenance processes for content; and distribution (mechanism and timing). Implementation guidance is provided with the standard.

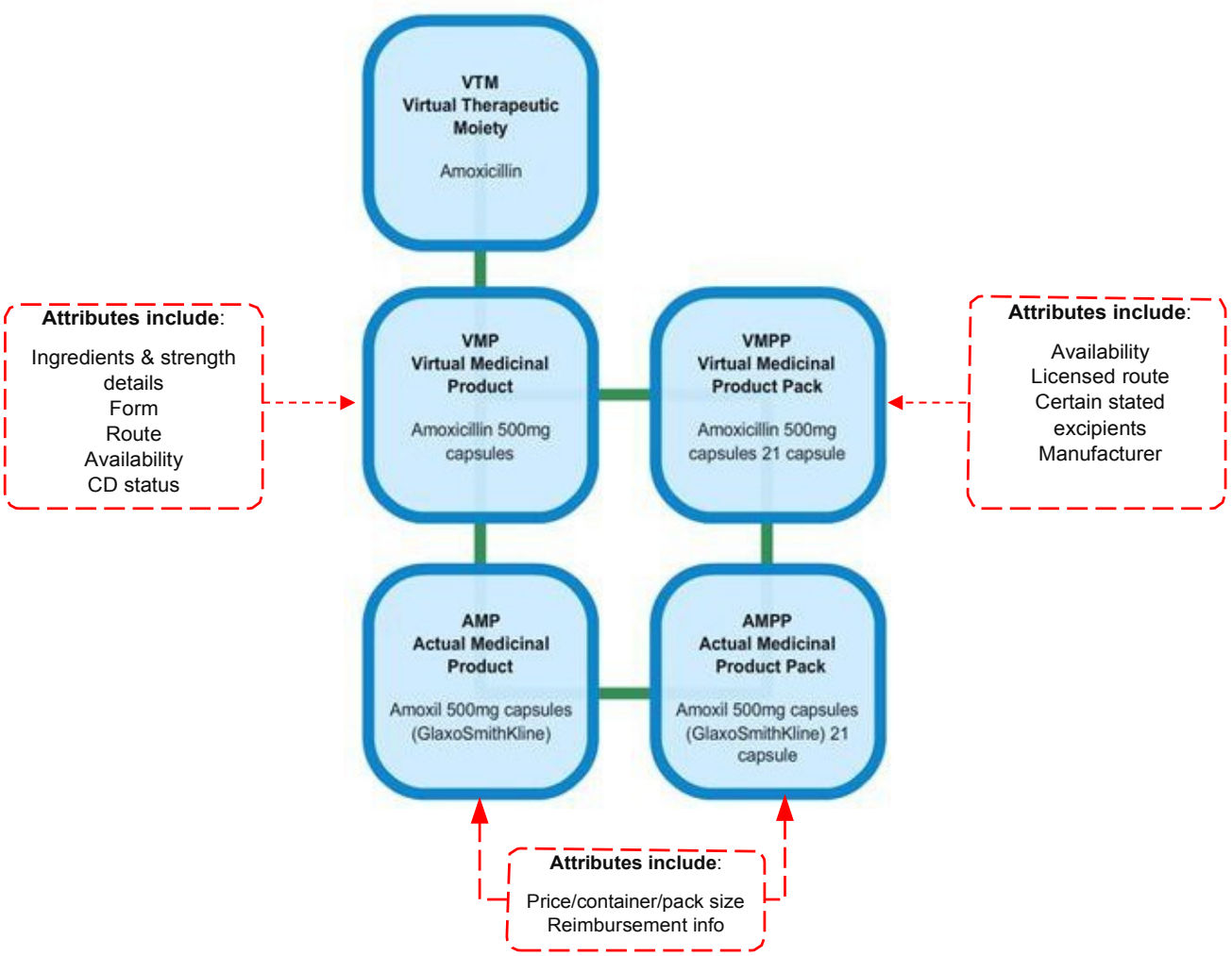
dm+d is now an established resource released weekly in XML format. Maintenance is a joint responsibility of the NHS Business Services Authority Prescription Services (NHSBSA PS) and the Pharmacy Terminology Development Service within NHS Digital.

2.2 Structure

The NHS dictionary of medicines and devices model has five components. Each component (represented as a box in the picture below) describes a product at different levels of granularity to support various use cases and this makes up the dm+d model.



For each entry within these five components there will be associated sets of information (attributes) intended to support aspects of general prescribing and dispensing scenarios and decision support.



In addition to the five dictionary components described above there is a requirement to supply and support an Ingredient file and look up files containing coded reference data (attributes) used by the dictionary. A full list of attributes is detailed in (Ref #3) the dm+d Technical Specification of Data Files document.

These files form the core of the dm+d product.

A number of additional files where dm+d concepts are mapped to other coding systems are produced and available for download.

2.2.1 GS1 Global Trade Item Numbers

GTIN (Global Trade Item Number) codes are the unique sequence of numbers associated with barcodes. They were developed by GS1 and the standard is maintained in the UK by GS1 UK.

A bar code represents numbers (or letters) in a machine-readable format that can be decoded, recorded and processed by a computer system when read by a bar code scanner.

The data in the bar code can automatically identify a physical product such as in the case of dm+d an Actual Medicinal Product Pack (AMPP).

The role of GTIN codes in automated healthcare systems has increased since the Information Standards Board (ISB) first approved this standard. Nationally the Department of Health is running the 'Scan4Safety' project. The Department of Health has stated that 'Scan4Safety has the potential to save lives and save up to £1billion for the NHS over 7 years'. In terms of medicinal products, their aim is to enable automatic identification that will help improve patient safety and supply chain efficiency.

There is no single directory of all GTIN codes. Pharmaceutical suppliers that are part of the GS1 scheme are able to allocate codes to their products based upon a system where they have a block of codes that are specific to them. The information as to which codes are allocated to which products is held by the individual pharmaceutical supplier.

A data file of GTINs mapped to AMPP concepts in dm+d has been published since 2008. This data is auto-populated following receipt of product information direct from pharmaceutical suppliers via the In-Demand portal and is subject to validation rules to minimise the risk of incorrect data. However responsibility remains with pharmaceutical suppliers to ensure provision of accurate GTIN data.

2.2.2 BNF and ATC mappings

NHS Digital publishes the BNF and ATC mappings on TRUD alongside the main dm+d release. The BNF and ATC mappings are not part of the main dm+d release and this standard does not cover them. They are mentioned here to provide clarity on their status.

The NHSBSA maintains a list of ATC classification codes and BNF codes linked to products prescribed in Primary Care (products prescribed in Secondary Care only are not linked to either ATC or BNF). They are not an officially endorsed dm+d product and the NHSBSA provides them for its own business purposes.

The mappings have not been clinically validated and as such cannot be recommended for clinical use. They are published to support secondary uses of dm+d.

Mappings to BNF paragraphs and chapter headings are a way of grouping products by therapeutic use case. The World Health Organisation (WHO) produces ATC codes, which are allocated to products based on therapeutic use case and intended body site. The ATC codes are also used in some systems to group products according to their use.

The NHSBSA maintains these files for its own business requirements and are pseudo BNF codes that provide mappings enabling the categorisation of products to a greater degree of granularity than that afforded by the BNF chapters. ATC and BNF codes are used to support collation and categorisation of prescribing and dispensing information within the NHS for Department of Health purposes.

2.3 Implementation Options

There are three broad options[1] of increasing maturity for the implementation of dm+d:

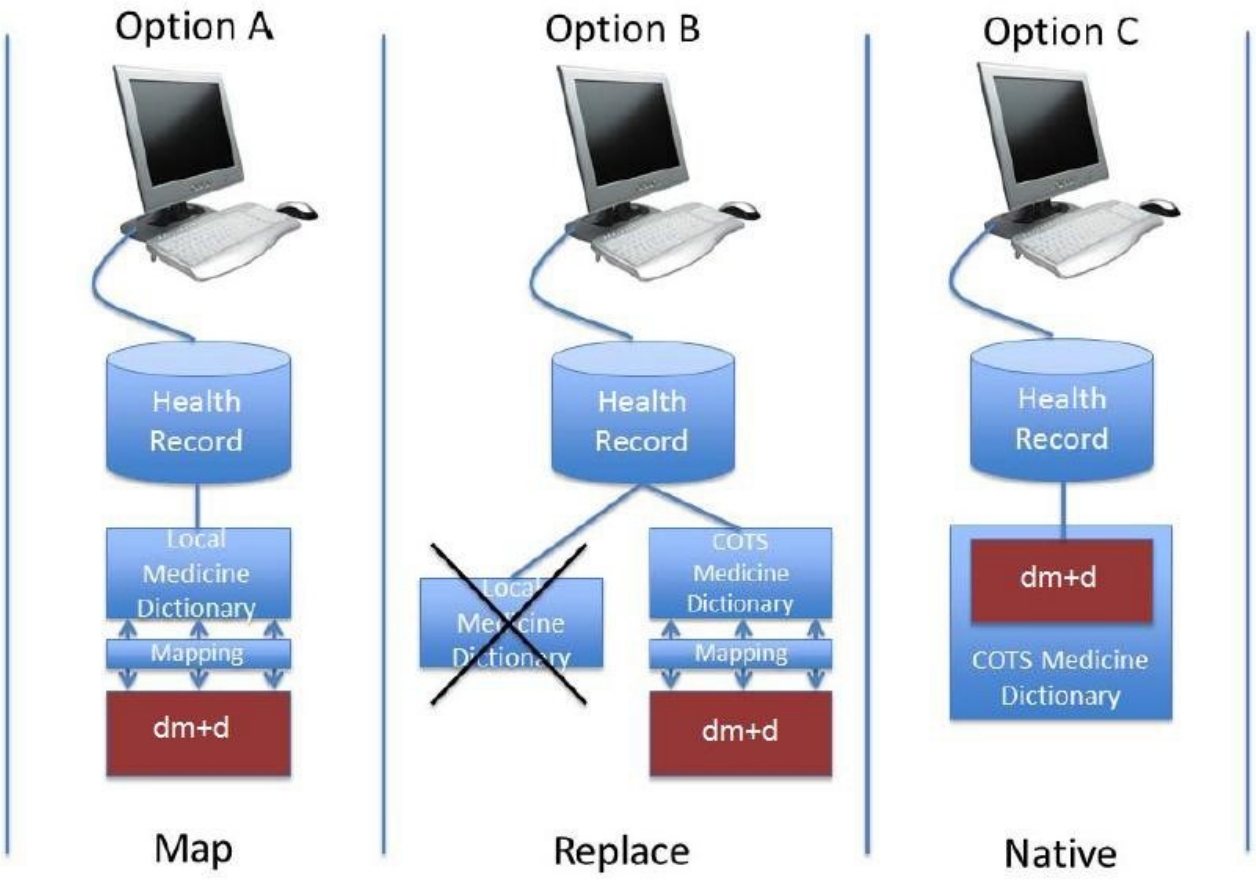
[1] The options illustrated are not wholly representative of all scenarios that may exist in clinical practice. For example the use of formularies derived from COTS or dm+d. Suppliers are not limited to the options illustrated.

a) Mapping of dm+d to an existing local medicine list. This requires the organisation to complete the initial mapping exercise and manage the maintenance activities associated with subsequent dm+d releases. The user interacts with the local medicine list through the user interface; local terms are recorded in the health record and mapped to dm+d concepts for the purpose of transferring information externally in system-to-system messages.

b) Replace the current local medicine list with a Commercial Off the Shelf (COTS) medicine dictionary product that has been mapped to dm+d. The mapping and maintenance activities of this option are undertaken by the vendor of the COTS medicine dictionary. The user interacts with the COTS medicine list through the user interface; COTS terms are recorded in the health record and mapped to dm+d concepts for the purpose of transferring information externally in system-to-system messages.

c) Native implementation of dm+d. The healthcare application in this option uses dm+d in its native form (this could be absorbed by the application or accessed via a COTS medicine dictionary). The distinction in this option is that users of the application are interacting with dm+d concepts through the user interface and dm+d concepts are stored and shared throughout the system. A COTS product is still required alongside dm+d to provide certain resources and functions such as decision support.

These options are illustrated below:



The use of mapping between dm+d and other medical dictionaries carries an additional risk to patient safety compared to the use of a dictionary natively but allows for a smoother transition to the standard. It is important that health and care organisations and their IT suppliers recognise this clinical safety risk and put steps in place to mitigate it.

To ensure that introduction of new systems or changes to systems does not adversely impact on patient safety, the development and deployment of systems that use dm+d or are integrated with third party terminologies will need to conform with Safety Risk Management Standards, namely:

- SCCI0160 – Clinical Risk Management: its Application in the Deployment and Use of Health IT Systems
- SCCI0129 - Clinical Risk Management: its Application in the Manufacture of Health IT Systems.

2.4 Population

dm+d is primarily populated by the pharmaceutical companies notifying the NHS Business Services Authority of changes to their product offerings. Notification should be done via the In-Demand system. It is a free service that allows pharmaceutical companies to electronically update their product information for inclusion in dm+d.

This applies to new products and changes to existing products.

If users are aware that dm+d is missing a medicine or device then this should be raised with the helpdesk. The BSA will then determine its appropriateness for inclusion and request information from the manufacturer.

The (Ref #1) Editorial Policy governs how each component in the model is authored and therefore provides consistent textual descriptions when new products become available. For example, VTM and VMP medicines are named according to the following hierarchy:

1. rINN — recommended international non-proprietary name.
2. INNM — modified recommended international non-proprietary name.
3. pINN — proposed international non-proprietary name.
4. BAN — British approved name.
5. BANM — modified British approved name.
6. USAN — United States adopted name.
7. Other.

2.5 Further Information

Further information is available from the dm+d website. Support for dm+d is provided by the NHS BSA helpdesk: nhsbsa.dmdenquiries@nhs.net. The issue resolution process is documented on the dm+d website.

3 Health and Care Organisations (including ALBs)

3.1 Overview

dm+d has been developed to allow IT systems to easily communicate information about medicines with each other. The information in dm+d is provided by the pharmaceutical companies and combined with reimbursement information contained within the Drug Tariff for those medicines dispensed in primary care.

At its simplest, dm+d comprises a list of concepts in each component of the model, each with a description and a unique identifier. All unique identifiers used in dm+d are SNOMED CT concept identifiers. Identifiers will either be core International Release SNOMED CT identifiers (for example VTM, VMP, Route of administration, Unit of measure, ingredient) or national namespace identifiers. All UK namespace identifiers contain the UK namespace identifier (100001) and are allocated to concepts other than just the medicines content within dm+d, for example pharmaceutical suppliers are also identified using UK namespace SNOMED CT identifiers.

The DH Information Strategy 'The Power of Information' recommends that where IT systems reference medicines they use dm+d to codify them. Standardising on a single set of identifiers means that IT systems can more easily interoperate and information more readily shared.

dm+d cannot be used on its own. It must be used within IT systems. The responsibility of health and care organisations is to ensure that their IT systems use dm+d safely.

When dm+d is updated, new concepts are added and existing concepts may be updated. Sometimes concepts are marked as invalid and no longer for use but concepts are never deleted once released.

dm+d is updated and released weekly. The table below gives an indication of the number of medicine and device concepts typically added per week:

Component	Number of Concepts added per week
VTM	0 - 5
VMP	5 – 50
VMPP	20 – 150
AMP	25 – 500
AMPP	50 – 500

A licence is not required to use products that incorporate dm+d. One is required to download the files from TRUD; however it is free of charge.

3.2 Requirements

3.2.1 Wording of Requirements

The wording used for Requirements should be clear and open to only one interpretation; Adjectives and adverbs are to be avoided. Compound statements are also prohibited.

The wording of Requirements must adhere to the 'MoSCoW' — RFC2119 Standard prioritisation method.

NOTE: - For further details of the 'MoSCoW' — RFC2119 Standard see: http://www.ietf.org/rfc/rfc2119.txt.

- Requirements are only to be expressed using the words MUST, MAY, and SHOULD, according to the 'MoSCoW' prioritisation method, especially for priority levels:

NOTE: - The negation of MUST and SHOULD (i.e. MUST NOT and SHOULD NOT) are allowed, but the negation of MAY (i.e. MAY NOT) is prohibited.

- MUST: This word, or the terms 'REQUIRED' or 'SHALL', means that the definition is an absolute requirement of the specification (the term 'MUST' is expected to be used to define this priority level).
- SHOULD: This word, or the adjective 'RECOMMENDED', means that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course (the term 'SHOULD' is expected to be used to define this priority level).
- MAY: This word, or the adjective 'OPTIONAL', means that an item is truly optional. One implementer may choose to include the item because a particular implementation requires it or because the implementer feels that it enhances the implementation while another implementer may omit the same item. An implementation which does not include a particular option MUST be prepared to inter-operate with another implementation which does include the option, though perhaps with reduced functionality. In the same vein an implementation which does include a particular option MUST be prepared to inter-operate with another implementation which does not include the option (except, of course, for the feature the option provides (the term 'MAY' is expected to be used to define this priority level).

3.2.2 List of Requirements

#	Requirement
1	Health and care organisations **MUST** ensure that any IT systems that record medicines information comply with the requirements by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.
2	Health and care organisations **MUST** ensure that IT systems use SNOMED CT identifiers specified in dm+d to communicate information between them by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.
3	Local or COTS identifiers **MAY** be used alongside dm+d identifiers when transferring information but only where systems are known to be wholly interoperable and utilise a terminology common to both the sending and the receiving system.
4	Health and care organisations **SHOULD** put in place a process by which medicines not in dm+d can be requested.
5	Health and care organisations **MUST** conform to SCCI0160 Clinical Risk Management: its Application in the Deployment and Use of Health IT Systems when deploying an IT system used for medication management, including those that use dm+d by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.
6	Health and care organisations **SHOULD** use dm+d identifiers and descriptions where medicine data is required in secondary uses data sets.

#	Requirement – General
7	Health and care organisations **MUST** ensure IT systems suppliers register to obtain a licence to download dm+d data and associated files from TRUD by the next major update, or new procurement, or by 30 June 2017 whichever is sooner. They **MUST** attribute the use of this standard, dm+d and associated products licensed under the Open Government Licence in product documentation. There is no charge for this licence.
8	Health and care organisations **MUST** have processes in place to be able to act on any urgent recalls issued through TRUD in a timely manner by the next major update, or new procurement, or by 30 June 2017 whichever is sooner. These will be communicated to the registered email address for the TRUD account.
9	Health and care organisations **MUST** conform to SCCI0129 Clinical Risk Management: its Application in the Manufacture of Health IT Systems for IT systems that use dm+d by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.
10	Health and care organisations **MUST** ensure that the dm+d release data is updated at least every 6 months by the next major update, or new procurement, or by 30 June 2017 whichever is sooner. However more frequent updates may be driven by a programme requirement or a specific use case.
11	Additions to the content **MAY** be made to support local requirements but these **MUST NOT** use the dm+d identifier namespace.
12	dm+d concepts within a component **MUST NOT** be deleted or amended. However, the system need not use all components.

#	Requirement – Terminology Mapping
13	dm+d **MAY** either be used natively, i.e. as the sole medicine terminology, or by accurately mapping between another dictionary and dm+d. If dm+d is mapped, the health and care organisation is responsible for the mapping. They **MUST** ensure it is fit for purpose and appropriately maintained.
14	Health and care organisations **MUST** ensure that where a SNOMED CT identifier and dm+d description are both used to identify a medicine that the integrity is preserved between them by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.

#	Requirement – Information Transfer
15	Systems **MUST** be able to output and receive SNOMED CT identifiers specified in dm+d and on receipt of an identifier the system **MUST** be able to 'translate' it to and display the associated human readable text description (whether a dm+d description or mapped to a concept within a local or COTS medicine dictionary) by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.
16	SNOMED CT identifiers specified in dm+d **MUST** be used where information on medicines used in the care of a NHS patient is transferred electronically from one system to another system by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.
17	If there is no identifier for a medicine (for example the medicine is new and has not yet been included), the system **MUST** have an appropriate failure mode by the next major update, or new procurement, or by 30 June 2017 whichever is sooner. This could be, for example, by transmitting a textual description or reverting to a paper process. Where a paper process is deemed appropriate in such instances, considerations must be given so as not to allow segregation of data. System users **MUST** also be made aware a prescription created in this manner is likely to have been subject to minimal decision support.
18	Health and care organisations **MUST** ensure the system provides an appropriate failure mode if a SNOMED CT identifier is received but not recognised by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.

#	Requirement – Visual Display
19	Where dm+d concepts are used directly within and in underlying data, then the visual representation of the record/display **SHOULD** faithfully represent the content in ways that are recognisably and wholly consistent with dm+d concepts and the dm+d model.
20	Systems **MAY** either use dm+d descriptions for visual display or map to a local or COTS medicine dictionary and use those descriptions.
21	Systems that display dm+d descriptions **MUST** support a field length of 255 characters with no truncation. Note. String wrapping onto an additional line is permitted by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.
22	dm+d identifiers **SHOULD NOT** be used for human readable display.
23	The abbreviated name in dm+d **MUST NOT** be used for display purposes on screen.

Example of services and standards that already meet the Standard are:

- Electronic Prescription Service
- Summary Care Records
- ISB 1582 Electronic Yellow Card Reporting

The dm+d website may also contain other examples.

The requirements for conforming to dm+d are contained within their own specifications.

3.3 Implementation

SCCI has published the Implementation guidance for this standard on its website.

3.4 Conformance

Health and care organisations are conformant to this standard when all their IT systems that record medications use dm+d when passing information between them.

Health and care organisations do not formally need to demonstrate conformance.

Note that conformance does not require implementing all the components of dm+d. Health and care organisations need use only those aspects that are relevant to the purpose of their IT system.

4 Pharmaceutical Companies

4.1 Overview

dm+d is only useful if it is up to date. The responsibility is on pharmaceutical companies to notify the NHS Business Services Authority of any new products or changes to existing products. This must be done electronically via the In-Demand system. To use the system pharmaceutical companies can register their interest by e-mailing servicedesk@medicines.org.uk

4.2 Requirements

4.2.1 Wording of Requirements

The wording used for Requirements should be clear and open to only one interpretation; Adjectives and adverbs are to be avoided. Compound statements are also prohibited.

The wording of Requirements must adhere to the 'MoSCoW' — RFC2119 Standard prioritisation method.

NOTE: - For further details of the 'MoSCoW' — RFC2119 Standard see: http://www.ietf.org/rfc/rfc2119.txt.

- Requirements are only to be expressed using the words MUST, MAY, and SHOULD, according to the 'MoSCoW' prioritisation method, especially for priority levels:

NOTE: - The negation of MUST and SHOULD (i.e. MUST NOT and SHOULD NOT) are allowed, but the negation of MAY (i.e. MAY NOT) is prohibited.

- MUST: This word, or the terms 'REQUIRED' or 'SHALL', means that the definition is an absolute requirement of the specification (the term 'MUST' is expected to be used to define this priority level).
- SHOULD: This word, or the adjective 'RECOMMENDED', means that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course (the term 'SHOULD' is expected to be used to define this priority level).
- MAY: This word, or the adjective 'OPTIONAL', means that an item is truly optional. One implementer may choose to include the item because a particular implementation requires it or because the implementer feels that it enhances the implementation while another implementer may omit the same item. An implementation which does not include a particular option MUST be prepared to inter-operate with another implementation which does include the option, though perhaps with reduced functionality. In the same vein an implementation which does include a particular option MUST be prepared to inter-operate with another implementation which does not include the option (except, of course, for the feature the option provides (the term 'MAY' is expected to be used to define this priority level).

4.2.2 List of Requirements

#	Requirement
24	Pharmaceutical companies **MUST** ensure dm+d contains accurate and up to date product information by using the In-Demand service when new products become available or there are changes to existing products by the next major update, or new procurement, or by 30 June 2017 whichever is sooner..
25	Pharmaceutical companies including manufacturers and suppliers **MUST** conform to GS1 standards when issuing GTIN codes by the next major update, or new procurement, or by 30 June 2017 whichever is sooner.
26	The accurate communication of valid GTIN codes to the NHS Prescription Services and Information Standards at NHS Digital lies with the suppliers / manufacturers of products and **MUST** be provided, where available, when submitting details of new products and changes to existing products.
27	Pharmaceutical companies **MUST** not re-use GTIN codes on discontinuation of a product.

4.3 Conformance

Pharmaceutical companies are conformant to this standard when dm+d contains an accurate representation of their products.

Pharmaceutical companies do not formally need to demonstrate conformance.

5 Appendix 1 – Accessing dm+d Files

5.1 Licensing

dm+d is licensed under the Open Government Licence. Users must accept the licence terms in order to download the dm+d files from TRUD.

5.2 Distribution

All NHS dm+d data is released through the Technology Reference Data Update Distribution Service (TRUD) on a weekly basis in two zip files:

- NHSBSA dm+d
- NHSBSA dm+d Supplementary (Bonus files).

The data is provided in a set of XML files. Delta files are not provided. Full information is provided in (Ref#3) NHS Dictionary of Medicines and Devices (dm+d) - Technical Specification of Data Files.

In order to maintain referential integrity within the target database the files need to be loaded in the following order:

1. Lookup/Ingredient
2. VTM
3. VMP
4. AMP/VMPP
5. AMPP.

Within the VMPP and AMPP files there are entries relating to combination packs that will require loading after the main VMPPs and AMPPs are populated. This order assumes that the target database is being populated from scratch each time and that the structure is not significantly different to the dm+d model.