Document filename:	**dm+d Implementation Guide (Primary Care)**		
Project / Programme	**Data, Insight and Statistics**	Project	**Pharmacy Terminology**
Document Reference			
Project Manager	**Jo Goulding**	Status	**Final**
Owner	**NHS Digital**	Version	**2.1**
Author	**Hui Teoh**	Version issue date	**26/04/2021**

dm+d Implementation Guide (Primary Care)

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Document management

Revision History

Version	Date	Summary of Changes
0.1	26/01/2007	First draft for comment incorporating user comments. Further amendments from CFH. Amendments following handover meeting
0.2	08/03/2007	Second draft for comment
0.3	29/03/2007	Amendments following further comment from CFH
0.4	13/04/2007	Final Internal review for release
0.5	30/04/2007	Draft for comment – All comments incorporated
0.6	01/08/2007	NHS post release comments incorporated
0.7	03/12/2007	PPD comments included
0.8	09/01/2008	Re word filtering pick lists
0.9	31/01/2008	Add filter out PI's on prescribing picking lists
0.10	06/02/2008	Add PPD comments
0.11	04/08/2008	Amendments following UKTCIF Reviews
0.12	23/03/2012	Corrections and update to content
0.13	02/09/2014	Document updated to conform to HSCIC template and logo Changes also made to content description as a result of 1) Reference to CSM amended to EMA 2) Reference to ZERO_DISCD amended to DND 3) Modifications to data model to include GTIN information 4) Amendments made arising to changes in DT e.g. limited stability indicator no longer applicable 5) Amendments made to Editorial Policy e.g. Flavour not specified
0.14-16	07/11/2014	Further changes/updates following internal review
1.0	13/03/2015	Version for publication
1.1	1/08/2020	Document updated to conform to NHS Digital template and logo. Changes also made to the content description as a result of: 1) Update to guidance on Wholesaler items 2) Amendments made to the Editorial policy e.g. VMP Prescribing Status Approval changed to Jo Goulding as Business Product Lead - Pharmacy Terminology as approver of routine updates to ensure dm+d references and content are up to date. Any major changes in message or essence will require dm+d Content Committee approval. Minor changes to ensure content stays current with dm+d for approval by the Business Product Lead - Pharmacy Terminology.
1.2	10/08/2020	Draft for comment
1.3-1.4	21/08/2020	Updates following internal review
2.0	9/11/2020	Version for publication

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2.1	26/04/2021	Changes made to the content description as a result of: 1) Update to the list of supplier names in Appendix 1 Wholesaler items 2) Amendments made to the Editorial policy to remove the value 'Hospital Only' from the AMP AVAIL_RESTRICTCD attribute 3) Removal of the registered trademark icon against SNOMED CT entries for consistency with other documentation

Reviewers

This document must be reviewed by the following people:

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Name	Signature	Title	Date	Version
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Jo Goulding	By email	Business Product Lead – Pharmacy Terminology	26/04/2021	2.1

Glossary of Terms

Term / Abbreviation	What it stands for
Advisory Committee on Borderline Substances/ACBS	A board known as the Advisory Committee on Borderline Substances (ACBS) advises on the circumstances in which these products may be regarded as drugs. Part XV of the Drug Tariff sets out the approved Borderline Substances. List A is an alphabetical index of the approved borderline products and the conditions they may be prescribed for. List B is an alphabetical index of medical conditions and the approved products for managing those conditions. Prescribers should endorse prescriptions with the endorsement 'ACBS' if they are issuing the prescription in accordance with the Committee's advice.

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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.
NHS 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.
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.
NHS England and Wales (Department of Health and Social Care and Welsh Government) Electronic Drug Tariff/Drug Tariff	The Drug Tariff provides information on what will be paid to contractors for NHS Services including both reimbursement (e.g. the cost of drugs and appliances supplied against an NHS Prescription form) and remuneration (e.g. professional fees/allowances which are paid as part of the NHS pharmacy contract). It is produced monthly by NHS Prescription Services, part of the NHS Business Services Authority on behalf of the Department of Health and Social Care. 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	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.
NHS Digital	In this context, organization assuming the responsibility for former Health and Social Care Information Centre (HSCIC) products and services.
NHS Business Services Authority/NHSBSA	NHSBSA is the organisation responsible for populating and maintaining dm+d. It is also the organisation responsible for the reimbursement of medicines prescribed in primary care.
Summary Care Records/SCR	Summary Care Records (SCR) are an electronic record of important patient information, created from GP medical records. They can be seen and used by authorised staff in other areas of the health and care system involved in the patient's direct care.
Selected List Scheme/SLS	SLS = Selected List Scheme = Part XVIIIB of the Drug Tariff. It is a list of items that may be prescribed under certain conditions. Prescriptions must be marked 'SLS' by the prescriber. These items that have been agreed by the Department of Health and Social Care as being part of the Selected List Scheme (more usually described as "SLS").

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	The criteria listed in Part XVIIIB of the Drug Tariff must be met before they can be prescribed under the NHS. By marking the prescription 'SLS' the doctor is indicating those criteria have been met.
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 and consists of descriptions and unique identifiers. SNOMED CT is managed and maintained internationally by SNOMED International and in the UK by NHS Digital.
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 https://isd.digital.nhs.uk/trud3/user/guest/group/0/home.
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. Examples of Virtual Therapeutic Moieties: Aspirin Atenolol Co-amoxiclav Doxorubicin Fluoruracil Paracetamol + Metoclopramide Moiety is often used synonymously with the chemical term 'functional group' but there are subtle differences in meaning which are explained here.

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1. Introduction

1.1. Purpose of Document

This document is intended to provide guidance to system suppliers on the use of NHS Dictionary of Medicines and Devices (dm+d) for unique, standard identification of medicines and medical devices in clinical information systems, primarily for use in the NHS in England. The document provides implementation guidance for inclusion of data into Primary Care clinical systems. It does not address issues to do with the structure and content of dm+d.

Please Note:

1) The guidance provided in this document is based on the best information available to the authors at the time of writing. It is possible that some guidance will need to be amended or augmented in future editions in the light of further developments and experience gained.

Comments on this document can be made by completing the issues form on https://www.nhsbsa.nhs.uk/sites/default/files/2017-07/issueform.pdf.

2) Some document links may not work from behind the NHS firewall. In this case please go to the dm+d website https://www.nhsbsa.nhs.uk/pharmacies-gp-practices-and-appliance-contractors/dictionary-medicines-and-devices-dmd and navigate to the required document.

2. Summary

The NHS Dictionary of Medicines and Devices (dm+d) is the standard specified by NHS Digital for describing and coding all medicines and medical devices in use within the NHS.

dm+d will allow stable, unambiguous references to be made to medicines and devices within clinical information systems and in the information transferred between interoperable clinical systems, including NHS Summary Care Records (SCR). This standard is essential for meeting NHS Digital objectives of the Electronic Prescription Service (EPS), GP to GP data transfer, and the population of centrally held electronic medical records via SCR.

This document uses models for a relational database structure, clinical prescribing and dispensing. These models serve to illustrate the data utilisation. The models are not intended to be recommendations, nor form the basis of individual system design.

3. Implementation Guide Structure

3.1. Description of method and sections

When describing how to implement dm+d it is helpful to have a model workflow to provide context for the data. This has been achieved through the use of two models: Prescribing and Dispensing. The models, for this version of the guide, comprise the main decisions and

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processes that are followed with regard to medicines management in primary care. Some form of logical ordering has been applied for illustration. However it is important to note that the guide in no way mandates the style or processing requirements of a healthcare system. The models are not recommendations for application development as this would be specific to individual system requirements. It should be possible to use the processes if required for the specific application being implemented.

The main sections for each of these processes and decisions are described in the following paragraphs:

Type

The type relates to the flow diagram and is either a process or a decision. The type provides an indicator for the typical processing required. Decisions typically have less complexity than processes.

Description

The description is in two parts; it includes a high level narrative of the process or decision which may then be followed by a technical method of achieving the desired result. This information is intended for use by business and systems analysts.

Additional Information

Where specific issues exist or there are certain items for consideration they are listed in this section. Typically these items are separated from the description as they are not core to the processing requirement.

Example

The example section shows pseudo code and the potential results of executing this pseudo code against the dm+d model presented in the Data Model (Appendix 2). The pseudo code has been generated using Microsoft SQL Server and, although it strongly resembles Structured Query Language (SQL), the code is not guaranteed to execute without some modification. This section is designed primarily for developers although analysts will find this useful in order to verify the results/outputs from a process.

Note: The content in the tables may not be a true representation of what is currently in dm+d as dm+d data is updated each week. Therefore, the lists provided may be incomplete or contain products that have since been discontinued.

Data Requirements

The data requirements table provides a summary of the data elements used in the examples. The table contains the entity name, column name, and the data type of the attribute. The data type column indicates the format of the data for each attribute and is taken from the document ‘NHS dictionary of medicines and devices Data Model’. More information regarding the content of each attribute and its data type can be found in the aforementioned document and the ‘Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).’

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Technical Specifications

This section serves as a reminder that this document is an implementation guide which, for the sake of clarity, has abstracted the dm+d as a relational database. In the event of conflicting information regarding data structure or description, the Technical Specification of Data Files for Release 2 of the NHS dm+d (https://www.nhsbsa.nhs.uk/pharmacies-gp-practices-and-appliance-contractors/dictionary-medicines-and-devices-dmd) overrides this implementation guide.

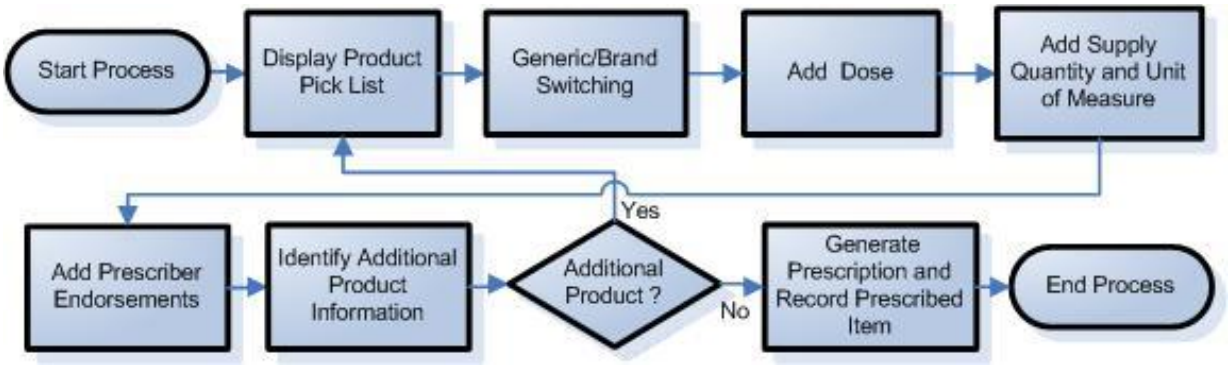
Entity Relationship Diagram

The entity relationship diagram shows the entities involved in each process or decision and the relationship between them.

4. Creation of an Intermediate Products Entity

The dm+d model is highly normalised and while this enables the size of the dm+d files to be kept to a minimum it makes data extraction from the native dm+d structure inefficient. For the purposes of this document an intermediate entity containing both AMPs and VMPs has been created. This entity is referred to as 'dmd_product' throughout this document. Attributes within this table that have been derived/calculated from the dm+d data are shown in lowercase to differentiate them from native dm+d attributes. All of the attributes included in this entity are required to perform at least one of the prescribing processes included in this document. Most of the SQL examples in this document make use of this entity. If a system wished to use the raw dm+d structure then all processing requirements can be referenced from Section 6 where the build of this dmd_product entity is described in detail.

5. Primary Care Prescribing



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5.1. Overview

- The Primary care prescribing model is an illustration of a theoretical prescribing workflow using dm+d. It is not intended to be a suggestion or replacement for technical system design. The model does not currently cover certain specialist cases for prescribing, for example extemporaneous preparations.

- Products are displayed in a pick list so that the prescriber may select the appropriate product to prescribe. The pick list may be a result of a search by order number or a match on product name. In addition filters may be used to further restrict the number of products in the pick list; however the preferred method of producing the list is determined by system design and so is not explicit in this guide.

- If the item selected is a brand, then the prescriber may wish to substitute this for the generic equivalent. Conversely in some cases it may be that a generic has been selected which is not recommended to be prescribed generically, in this case the system should prompt the user to select an equivalent brand.

- The provision of a dose for the selected product is an essential part of the prescribing process. The construction of a dose instruction is however beyond the scope of this document.

- The units of measure related to the supply quantity should be sourced from dm+d data. However the actual quantity dispensed may in some cases be calculated from the information provided on the prescription (e.g. calculated from the dose and duration of treatment) rather than dm+d data. It is mandatory for an EPS message to include the prescribed quantity.

- Certain products require that the prescriber endorses the prescription in order to be eligible for NHS supply. Whilst dm+d cannot provide enough information to support all endorsements there are instances where dm+d can indicate where a given endorsement is applicable.

- dm+d also provides additional product information which may be of interest to the prescriber or prescribing system. For example, excipients and prices.

- Multiple items may be added to the prescription as required to a maximum of four items.

- Finally, the prescription can be generated and the items prescribed recorded in the system.

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5.2. Prescribing Process Flow

This section provides guidance on the entities involved in the prescribing process flow.

5.2.1. Display Product Pick List

5.2.1.1. Type

Process

5.2.1.2. Description

For the purposes of this document a product level pick list is assumed. This pick list contains Actual Medicinal Products (AMPs) and Virtual Medicinal Products (VMPs). As described the product pick list shall be built using the dmd_product entity rather than the individual VMP and AMP entities.

Note: Abbreviated names should NOT be used for pick lists. The abbreviated name in dm+d is intended solely for the purpose of creating dispensing labels.

a. dm+d supports searching for items using product name or order number. It is anticipated that it would be desirable to restrict the number of results returned from a search. Various criteria can be applied to achieve this. Some of the criteria are implicit in the dm+d structure, for example the removal of invalid concepts, whereas other criteria may be provided through the user interface, such as filtering on items in the Nurse Formulary or utilising the availability restrictions flag at AMP level to eliminate specials products.

b. Once the criteria have been selected the pick list can be built and presented through the user interface. dm+d does not support the ordering of the pick list other than alphabetically. However, if required, other methods of system specific ordering could be employed, such as by prescription volume.

   Note: When a pick list contains both VMPs and all AMPs, there is a risk that prescribers may pick an AMP with a generic name and associated supplier (also referred to as a manufactured generic) but assume that they have prescribed a true generic product. What they have actually prescribed is a specific supplier's product (e.g. Atenolol 100mg tablets (AAH Pharmaceuticals Ltd)) and the pharmacy is then required to supply this particular product. Systems will typically exclude manufactured generics by default as indicated in the table below.

   If a prescriber wishes to prescribe a generic then a VMP should be selected. This allows any manufactured generic to be dispensed. It may therefore help prescribers if pick lists were ordered so that the VMP comes before AMPs.

c. The description used in the display of the pick list should be the AMP.DESC or VMP.NM which equates to the DISPLAY_NAME attribute in the dmd_product entity.

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d. In addition to using the product name or order number the following list shows filters which can be used to restrict the number of concepts returned by a search.

e. The item to be prescribed can then be selected from the pick list.

Attribute	Purpose	Relevance as pick list filter	Recommended Defaults
PRES_STATCD	Indicates the prescribability status of a VMP	Only VMPs where the PRES_STATCD is set to 'Valid as a prescribable product' should be displayed initially. Although VMPs marked as 'Caution – AMP level prescribing advised' may be displayed brand substitution should be enforced following selection. 'Invalid to prescribe in NHS primary care' includes those VMPs which appear in Schedule 1 * (Part XVIIIA of the Drug Tariff), devices where linked AMPs are not reimbursable by the NHS and combination product components. Systems may wish to allow users to manually include these items where a private prescription is to be generated.	'Valid as a Prescribable Product' and 'Caution - AMP level prescribing advised' (PRES_STATCD = 1 or 9)
AVAIL_RESTRICTCD	Indicates the availability of a given AMP, also derived for the VMP	Systems may wish to use this attribute to allow users to filter out certain product groups, e.g. Clinical trials and Specials	Where AVAIL_RESTRICTCD = 1 i.e. no restrictions on availability
NON_AVAILCD	Indicates where all AMPs are not available for a VMP	Systems may wish to use this attribute to filter out VMPs where all AMPs are discontinued	Where NON_AVAILCD is NULL or equals 0 i.e. some associated AMPs are available
product_type (Derived field, non dm+d)	Indicates if the product is a Generic (VMP), Brand (AMP) or Manufactured Generic (AMP). Applies to both VMPs and AMPs	Systems will typically exclude manufactured generics by default Values: 1 – Generic 2 – Brand	Where product_type = 1 or 2

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		3 – Manufactured Generic	
LIC_AUTHCD (from AMP entity)	Indicates the Licensing Authority for an AMP, also derived for VMPs	Allows the system to restrict the pick list items to those which are licensed or unlicensed.	Where LIC_AUTHCD = 1 or 2 (i.e. excluding 0 which indicates an unlicensed product) and 3 indicating unknown and 4 indicating Traditional Herbal Medicines
NURSE_F	Indicates if AMP or VMP is in the Nurse Prescribers' Formulary for Community Practitioners (in Wales District Nurses and Health Visitors), derived from AMPP	Allows the system to restrict the pick list items to those only available in the nurses formulary	Prescriber type dependent
DENT_F	Indicates if AMP or VMP is in the dentist formulary, derived from AMPP	Allows the system to restrict the pick list items to those only available in the dentist formulary	Prescriber type dependent
SCHED_1	Indicates AMPs listed in part XVIIIA of the Drug Tariff. Derived from AMPP	Allows the system to restrict the AMP items in the pick list to those not listed in Part XVIIIA of the Drug Tariff	Where SCHED_1 is NULL or equals 0
PARALLEL_IMPORT	Indicates that the AMP is a parallel import ie it has been procured and imported from within the EU and has a PI licence.	Systems may use this attribute to allow users to filter out parallel imported AMPs.	(PARALLEL_IMPORT = 0 or NULL)

* Schedule 1 covers drugs and other substances not to be prescribed under General Medical Services contract. Part XVIIIA of the Drug tariff reproduces Schedule 1 to the National Health Service (General Medical Services Contracts) (Prescription of Drugs etc.) Regulations 2004.

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5.2.1.3. Additional Information

Some of the attributes in the above table are held at pack level within the dm+d model and have been propagated to product level for the purposes of the dm+d product entity. See Section 6 for further details.

The LIC_AUTHCD cannot be used to distinguish between medicines and appliances for clinical uses. For example, the AMP ‘Sodium bicarbonate 5% ear drops (Thornton & Ross Ltd)’ would commonly be thought of by prescribers as a drug, however, it is licensed as a device.

It is possible for two AMPs attached to the same VMP to have differing licensing authorities. In these instances, it may not be possible to derive a single LIC_AUTHCD value for the VMP entity within the dmd_product entity.

5.2.1.4. Example 1

The example shown below displays a pick list using the defaults suggested above with a product name search for ‘Silver nitr%’.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      DISTINCT DISPLAY_NAME
FROM        dmd_product
INNER JOIN AMP
ON          (concept_class = 1
AND         dmd_product.DMDID = AMP.VPID)
OR          (concept_class = 2
AND         dmd_product.DMDID = AMP.APID)
WHERE       NURSE_F in (1, 0)
        AND DENT_F IN (1, 0)
        AND LIC_AUTHCD in (1, 2, 3, 4)
        AND PRES_STATCD IN (1, 9)
        AND product_type IN (1, 2)
        AND dmd_product.AVAIL_RESTRICTCD IN (1)
        AND (NON_AVAILCD IS NULL OR NON_AVAILCD = 0)
        AND SCHED_1 = 0
        AND DISPLAY_NAME LIKE ‘Silver nitr%'
ORDER BY    DISPLAY_NAME
```

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DISPLAY_NAME
Silver nitrate 40% caustic pencils
Silver nitrate 75% caustic applicators
Silver nitrate 95% caustic applicators
Silver nitrate 95% caustic pencils

5.2.1.5. Example 2

The example shown below displays a pick list for generic items that appear in the nurse formulary, are licensed as a medicine through the MHRA/EMA and start with ‘Econaz’.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      DISTINCT  DISPLAY_NAME
FROM        dmd_product
INNER JOIN AMP
ON          (concept_class = 1
AND         dmd_product.DMDID = AMP.VPID)
OR          (concept_class = 2
AND         dmd_product.DMDID = AMP.APID)
WHERE       NURSE_F in (1)
AND         DENT_F IN (1,0)
AND         LIC_AUTHCD in (1)
AND         PRES_STATCD IN (1,9)
AND         product_type IN (1)
AND         dmd_product .AVAIL_RESTRICTCD IN (1)
AND         (NON_AVAILCD IS NULL OR NON_AVAILCD  = 0)
AND         SCHED_1 = 0
AND         DISPLAY_NAME LIKE 'Econaz%'
ORDER BY    DISPLAY_NAME
```

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DISPLAY_NAME
Econazole 1% cream

5.2.1.6. Example 3

The example shown below displays a pick list for AMP devices using an order number search. Order numbers can be held at AMP level or AMPP level, therefore, the AMPP entity has been incorporated to enable a search at both levels. Due to the fact that the dmd_product entity is based at product level regardless of whether the order number is matched at AMP or AMPP level the AMP is returned.

The example shown below illustrates searching for concepts with the order number '30-850'.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      DISTINCT  DISPLAY_NAME
FROM        dmd_product
INNER JOIN AMP
ON          dmd_product.DMDID = AMP.APID
INNER JOIN AMPP
ON           AMP.APID = AMPP.APID
INNER JOIN PACK_INFO
ON          PACK_INFO.APPID = AMPP.APPID
WHERE       NURSE_F in (1,0)
AND         DENT_F IN (1,0)
AND         LIC_AUTHCD in (2)
AND         PRES_STATCD IN (1,9)
AND         product_type IN (1)
AND         dmd_product .AVAIL_RESTRICTCD IN (1)
AND         (NON_AVAILCD IS NULL OR NON_AVAILCD  = 0)
AND         SCHED_1 = 0
AND         (PROD_ORDER_NO like '30-850%'
OR          PACK_ORDER_NO like '30-850%' )
ORDER BY    DISPLAY_NAME
```

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DISPLAY_NAME
Biotrol Elite colostomy bag with filter 30-850 50mm Transparent (B.Braun Medical Ltd)

5.2.1.7. Data Requirements

Entity Name	Column Name	Data Type
*dmd_product	DISPLAY_NAME	String
*dmd_product	NURSE_F	Integer
*dmd_product	DENT_F	Integer
*dmd_product	PRES_STATCD	Integer
*dmd_product	*product_type	Integer
*dmd_product	AVAIL_RESTRICTCD	Integer
*dmd_product	NON_AVAILCD	Integer
*dmd_product	SCHED_1	Integer
*dmd_product	DMDID	SNOMED CT identifier
AMP	APID	SNOMED CT identifier
AMP	LIC_AUTHCD	Integer
AMP	PROD_ORDER_NO	String
AMPP	APID	SNOMED CT identifier
AMPP	PACK_ORDER_NO	String

* This item is not a standard part of the dm+d and is explained in more detail in Section 6 of this document.

5.2.1.8. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

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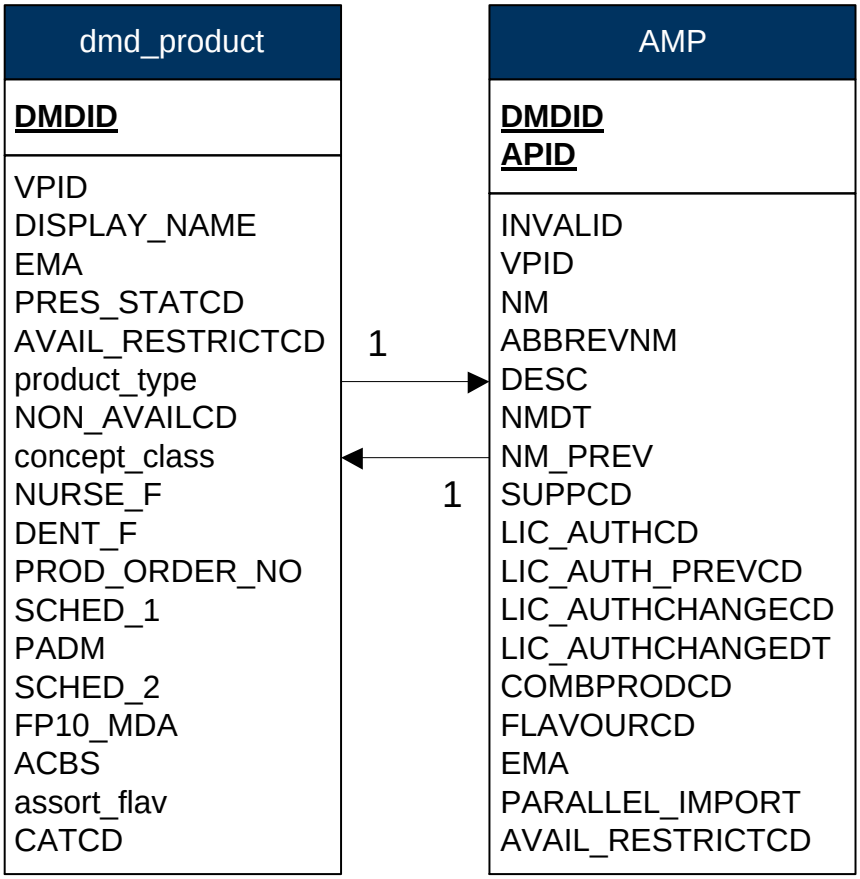
5.2.1.9. Entity Relationship Diagram

This dmd_product entity is not part of the standard dm+d. See section 6 for details.



5.2.2. Generic/Brand Switching

5.2.2.1. Type

Process

5.2.2.2. Description

Prescribers are encouraged by the NHS where possible to prescribe medicines generically. To facilitate this some prescribing systems allow prescribers to identify a generic equivalent to the selected brand. The dm+d model supports this by allowing systems to navigate from an AMP concept to the VMP. However, there are scenarios in which generic substitution is not suitable. This is where the generic should not be prescribed and this is identified by those VMPs where the PRES_STATCD is not set to 1.

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Therefore, before allowing prescribers to switch from a selected brand to the generic equivalent it should be checked that the VMP.PRES_STATCD is set to 1. Where this is not the case then this generic switch option should not be available.

Conversely there are instances where the prescriber may have selected a generic product where brand prescribing should be enforced. In Display Product Pick List it is suggested that those VMPs where the PRES_STATCD field equals 9 should be displayed. However, it is not recommended that these concepts are prescribed generically, they are present in the pick list for navigational purposes as the prescriber may only know the generic name. The reasons for the application of the "Caution – AMP level prescribing advised" prescribing status can be found in the dm+d Editorial policy. Where a prescriber has selected a VMP for prescribing the PRES_STATCD field should be checked. If it equals 9 then the system should prompt the user to select one of the equivalent AMPs.

5.2.2.3. Example 1

In this example a brand product has been selected and the prescriber would like to convert this into its generic equivalent.

Tenormin 100mg tablets (AstraZeneca UK Ltd) (DMDID =162411000001102) switched for Atenolol 100mg tablets.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      NM
FROM        VMP
INNER JOIN  dmd_product
ON          dmd_product.VPID = VMP.VPID
WHERE       dmd_product.DMDID = 162411000001102
```

NM
Atenolol 100mg tablets

5.2.2.4. Example 2

In this example a generic product has been selected which is flagged as Caution – AMP level prescribing advised (PRES_STATCD= 9). The example below demonstrates how applicable brands can be identified.

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Product initially selected is:

Nifedipine 60mg modified-release tablets (DMDID = 319276004)

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

The following query produces a list of the equivalent AMPs for the selected VMP.

```
SELECT      *DESC
FROM        dmd_product
INNER JOIN  AMP
ON          dmd_product.DMDID = AMP.VPID
WHERE       dmd_product.DMDID = 319276004
```

*Note some Relational Database Management Systems (RDBMS) will see DESC as a keyword, which may affect the pseudo code.

DESC
Adalat LA 60 tablets (Bayer Plc)
Adalat LA 60 tablets (Lexon (UK) Ltd)
Adalat LA 60 tablets (Necessity Supplies Ltd)
Adalat LA 60 tablets (Sigma Pharmaceuticals Plc)
Adalat LA 60 tablets (Waymade Healthcare Plc)
Adanif XL 60mg tablets (Focus Pharmaceuticals Ltd)
Adipine XL 60mg tablets (Trinity-Chiesi Pharmaceuticals Ltd)
Neozipine XL 60mg tablets (Fannin UK Ltd)
Nimodrel XL 60mg tablets (Zurich Pharmaceuticals)
Valni XL 60mg tablets (Zentiva)

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5.2.2.5. Data Requirements

Entity Name	Column Name	Data Type
*dmd_product	DMDID	SNOMED CT identifier
*dmd_product	VPID	SNOMED CT identifier
AMP	DESC	String
VMP	VPID	SNOMED CT identifier
VMP	NM	String

* This item is not a standard part of the dm+d and is explained in more detail in Section 6 of this document.

5.2.2.6. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

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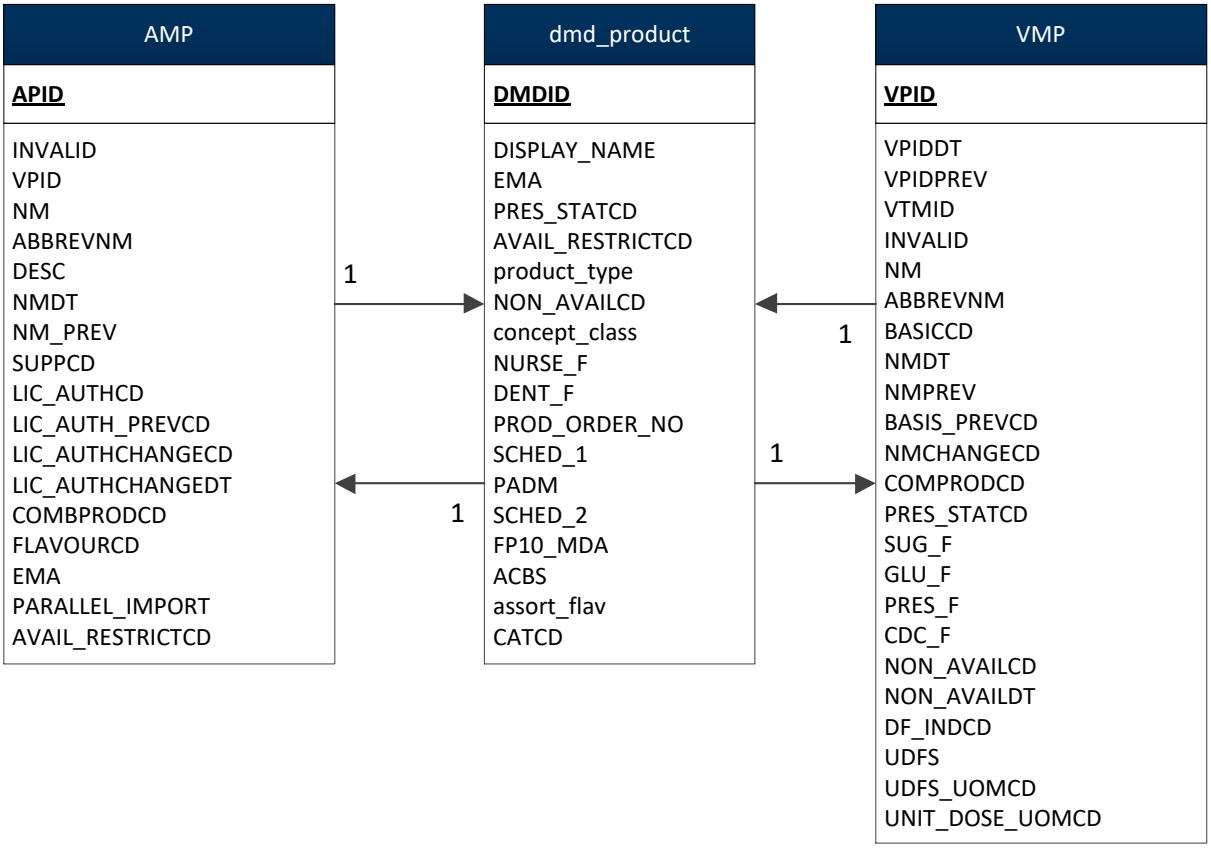
5.2.2.7. Entity Relationship Diagram

The dmd_product entity is not part of the standard dm+d. See section 6 for details.



5.2.3. Add Dose

5.2.3.1. Type

Process

5.2.3.2. Description

Where a dm+d concept has been prescribed, elements of the dm+d data may be required in the construction of a dose sentence (dosage instructions). How this is accomplished is out of the scope of this document.

Note: Whilst this may be out of the control of developers and implementers of systems it is worth noting that information represented at the ‘add dose’ step should only be used to convey dosage instructions and not result in a change to the product that has been selected from the pick list. For example ‘Sodium cromoglicate 2% eye drops’ has been selected from the pick list but the dose sentence states preservative free.

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If preservative free is required then the product selected should reflect this i.e. ‘Sodium cromoglicate 2% eye drops preservative free’.

5.2.3.3. Additional Information

None.

5.2.3.4. Example

Not applicable.

5.2.3.5. Data Requirement

Not applicable.

5.2.3.6. Technical Specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

5.2.3.7. Entity Relationship Diagram

Not applicable.

5.2.4. Add Supply Quantity and Unit of Measure

5.2.4.1. Type

Process

5.2.4.2. Description

While a dose instruction describes how a medicine should be administered, supply quantity and unit of measure describe the total quantity of the given medicine or device with which a patient should be supplied.

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The units of measure applicable for the selected product can be sourced from the QTY_UOMCD in the VMPP entity. There is rarely more than one unit of measure available for a given product but systems must allow for this. The VMPP entity is joined to the AMPP entity to ensure that units are only returned where AMPPs are identified as being available. This step would not be necessary if the product selected is itself not available.

Due to the dependency on dose instruction dm+d alone cannot be used to calculate the supply quantity. For example the duration of treatment, which forms part of the dose, may be required in order to establish the supply quantity. It should be noted however that EPS system messages must always carry a supply quantity.

5.2.4.3. Additional Information

None.

5.2.4.4. Example

The example below demonstrates the retrieval of applicable units for 'White soft paraffin 15% / Liquid paraffin light 6% cream', VPID = 3376311000001102. (This example illustrates one of the rare occasions that more than one unit of measure is returned).

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT DISTINCT *DESC
FROM            dmd_product
INNER JOIN      VMPP
ON              dmd_product .VPID = VMPP.VPID
INNER JOIN      AMPP
ON              AMPP.VPPID = VMPP.VPPID
AND             (AMPP.DISCCD IS NULL
OR              AMPP.DISCCD = 0)
INNER JOIN      UNIT_OF_MEASURE
ON              UNIT_OF_MEASURE.CD = VMPP.QTY_UOMCD
WHERE           DMDID = 3376311000001102
```

*Note some Relational Database Management Systems (RDBMS) will see DESC as a keyword, which may affect the pseudo code.

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DESC
gram
ml

5.2.4.5. Data Requirements

Entity Name	Column Name	Data Type
*dmd_product	DMDID	SNOMED CT identifier
AMPP	VPPID	SNOMED CT identifier
AMPP	DISCCD	Integer
VMPP	VPID	SNOMED CT identifier
VMPP	VPPID	SNOMED CT identifier
VMPP	QTY_UOMCD	SNOMED CT identifier
UNIT_OF_MEASURE	CD	SNOMED CT identifier
UNIT_OF_MEASURE	DESC	String

5.2.4.6. Technical Specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

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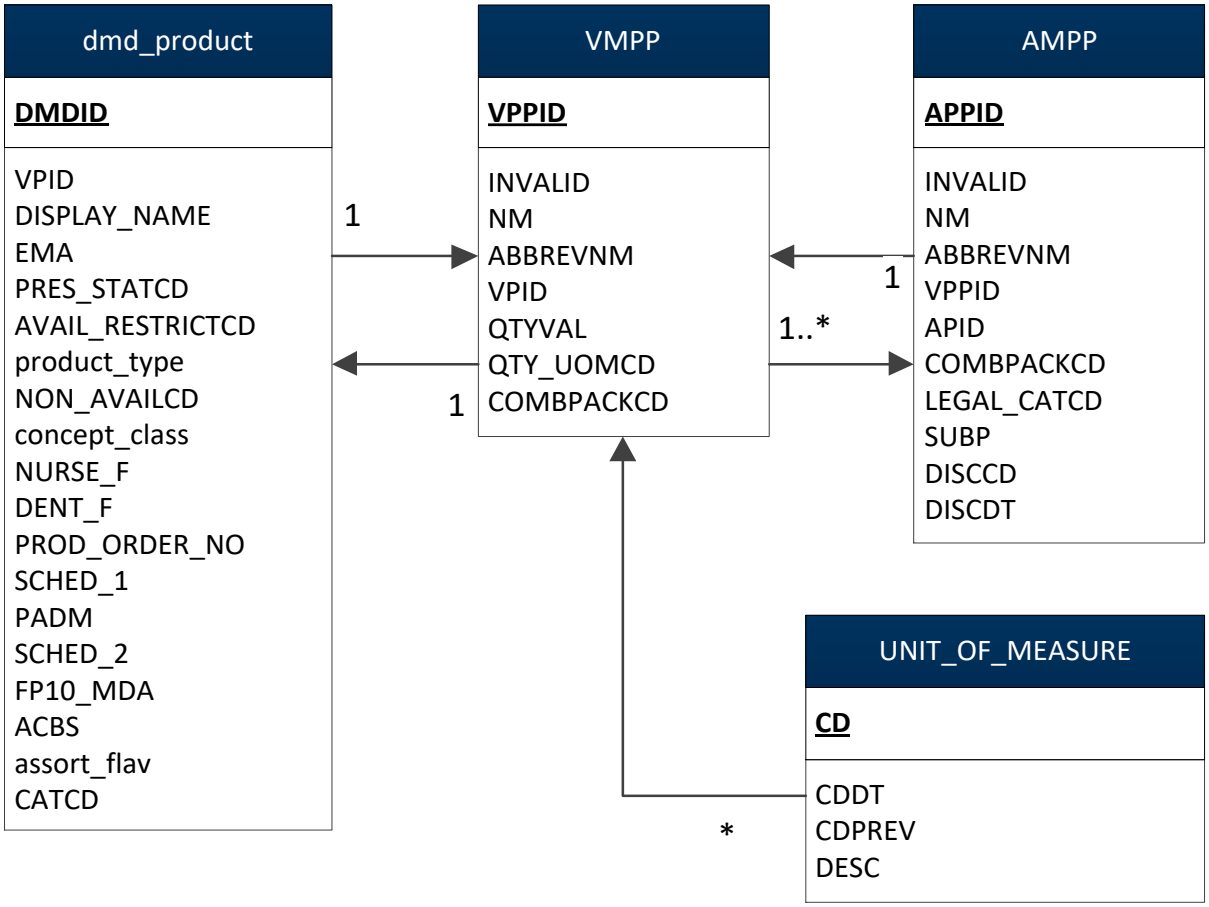
5.2.4.7. Entity Relationship Diagram

The dmd_product entity is not part of the standard. See section 6 for details.



5.2.5. Add Prescriber Endorsements

5.2.5.1. Type

Process

5.2.5.2. Description

Prescriber endorsements – these endorsements should be prescriber initiated to ensure prescriber confirmation and not be automatically added by the system. For further information see the document 'Electronic Prescription Service Guidance for Endorsement'.

(http://www.nhsbsa.nhs.uk/PrescriptionServices/1972.aspx)

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There are a number of possible prescriber endorsements. The dm+d provides direct identification of applicable endorsements in two cases:

Where the product is a borderline substance and 'ACBS' should be endorsed

Where the product is part of the Selected List Scheme (Schedule 2)* and 'SLS' should be endorsed

(*Schedule 2 covers drugs and appliances that may be ordered only in certain circumstances. Part XVIIIB of the Drug Tariff reproduces Schedule 2 of the National Health Service (General Medical Services Contracts)(Prescription of Drugs etc.) Regulations 2004.

The first of these, 'ACBS', is endorsed where the product is recommended by the Advisory Committee on Borderline Substances (ACBS) and the prescriber has satisfied themselves that the item is being used to treat the condition for which it is recommended.

These items can be identified by the ACBS flag in the PRESCRIB_INFO entity which is related to the AMPP entity. Where an AMP or VMP is prescribed the endorsement should be made if any related AMPP is indicated as having the ACBS flag equal to 1.

The second, Selected List Scheme 'SLS', is endorsed where an item from Schedule 2 of the NHS General Medical Services Contract Regulations 2004 that is included in the Drug Tariff is prescribed for a patient with a suitable condition to receive that item. For example the drug clobazam should only be given to control epilepsy. To identify these items the SCHED_2 flag should be used from within the PRESCRIB_INFO entity which is related to the AMPP entity. Where an AMP or VMP is prescribed the endorsement should be made if any related AMPP is indicated as having the SCHED_2 flag equal to 1.

In the case of the endorsement 'Assorted Flavours' the dm+d can be used to indirectly determine where this endorsement may be applicable. This is where an AMP is prescribed and a supplier provides two or more clinically equivalent AMPs differentiated only by their flavour. dm+d supports prescribers to prescribe without specifying flavour by the 'Flavour Not Specified' AMP concepts. E.g. Ensure liquid (Flavour Not Specified). The endorsement 'Assorted Flavours' then means multiple flavours can be dispensed against this prescription and the appropriate dispensing fees claimed.

Conversely the endorsement 'assorted flavours' should not be applied to an AMP where the description includes the flavour.

All three of the above attributes are present within the dmd_product entity.

The dm+d model does not support identifying the applicability of the female symbol ♀ or CC/OC endorsement to indicate a product is being used for contraceptive purposes. See Part XVI of the Drug Tariff paragraph 10 Contraceptive services.

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5.2.5.3. Additional Information

None.

5.2.5.4. Example 1

This example shows how to identify where the ACBS endorsement is applicable for a given product, in this example the product is Ensure liquid vanilla (Abbott Laboratories Ltd).

```
SELECT    DISPLAY_NAME, ACBS
FROM      dmd_product
WHERE     DMDID = 189611000001108
```

DISPLAY_NAME	ACBS
Ensure liquid vanilla (Abbott Laboratories Ltd)	1

5.2.5.5. Example 2

This example shows how to identify those products where an ‘Assorted flavours’ endorsement is applicable. In this example the product is an AMP 'Ensure liquid (Flavour Not Specified)’.

```
SELECT    DISPLAY_NAME, assort_flav
FROM      dmd_product
WHERE     DMDID = 20993011000001107
```

DISPLAY_NAME	assort_flav
Ensure liquid (Flavour Not Specified)	1

5.2.5.6. Example 3

This example shows how to identify those items where ‘SLS’ is an applicable endorsement. In this example the product is a Confidence ring firm Pink (Healthcare 2000 Ltd).

```
SELECT    DISPLAY_NAME, SCHED_2
FROM      dmd_product
```

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WHERE DMDID = 5973111000001109

DISPLAY_NAME	SCHED_2
Confidence ring firm Pink (Healthcare 2000 Ltd)	1

5.2.5.7. Data Requirements

Entity Name	Column Name	Data Type
*dmd_product	DISPLAY_NAME	String
*dmd_product	SCHED_2	Integer
*dmd_product	ACBS	Integer
*dmd_product	assort_flav	Integer

5.2.5.8. Technical Specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

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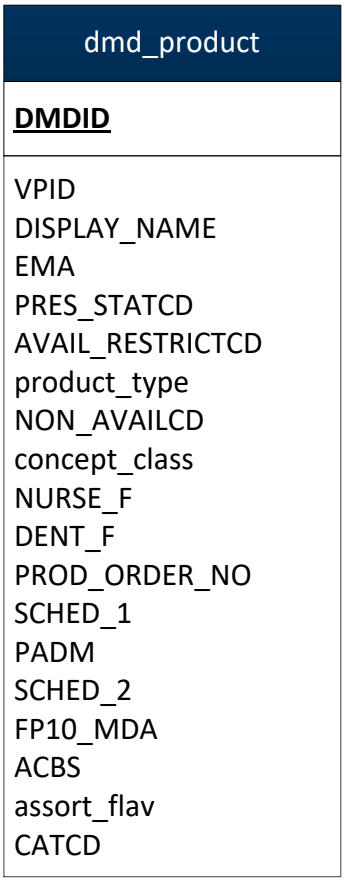
5.2.5.9. Entity Relationship Diagram

This dmd_product entity is not part of the standard dm+d. See section 6 for details.



5.2.6. Identify Additional Product Information

5.2.6.1. Type

Process

5.2.6.2. Description

Once a product is selected the dm+d provides additional information which may be of interest to the prescriber or the prescribing system. These include:

Identifying Controlled Drugs

It is necessary to treat controlled drugs differently from other medicines in a number of clinical scenarios.

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To identify controlled drugs within the dm+d the CONTROL_INFO entity should be used. This entity contains a list of all VMPs and their controlled drug status. The controlled drug status (CATCD) has been added as an attribute of the dmd_product entity.

Prescribing on an FP10 MDA Form

dm+d indicates those items which may be prescribed on an FP10 MDA form. The FP10 MDA flag is held as part of the PRESCRIB_INFO entity of an AMPP. This may be used by systems in order to prompt prescribers as to whether they wish to prescribe the item on an FP10 MDA form. This flag has been added as an attribute of the dmd_product entity.

European Medicines Agency Additional Monitoring Scheme

Certain medicines within the dm+d are marked as requiring additional monitoring in accordance with the European Medicines Agency Additional Monitoring Scheme. This is denoted by having the EMA flag set to 1.

The Commission on Human Medicines (CHM) has indicated all adverse reactions should be reported for drugs listed under this scheme. Systems may wish to indicate to users that they have selected such a drug. In the UK these drugs are denoted by a black triangle.

These drugs can be identified using the EMA attribute within the AMP entity. However as it may not be known which brand has been dispensed, this flag has been added as an attribute of the dmd_product entity for both VMPs and AMPs.

Personal Administration

This flag indicates where a prescriber will receive a fee for administering an item. This is only applicable to NHS primary medical services contractors. Systems may wish to indicate this to prescribers where an applicable product is selected. These items can be identified using the PADM flag within the PRESCRIB_INFO entity. As this attribute is held at AMPP level it can be assumed that any AMP or VMP which can be navigated to from an AMPP with this flag set can be personally administered. This flag has been added as an attribute of the dmd_product entity.

5.2.6.3. Additional Information

None.

5.2.6.4. Example

The following example identifies whether a given product is subject to the prescription requirements of the Misuse of Drugs regulations 2001 as specified in schedules 2 and 3. For these items it is required that the total quantity prescribed or number of unit doses is written in both words and figures. In this example the product is Methadone 1mg/ml oral solution.

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This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT    DISPLAY_NAME, CATCD
FROM      dmd_product
WHERE     CATCD IN (2,3,4,5,6)
AND       DMDID = 322570006
```

DISPLAY_NAME	CATCD
Methadone 1mg/ml oral solution	2

5.2.6.5. Data Requirements

Entity Name	Column Name	Data Type
*dmd_product	CATCD	Integer
*dmd_product	DISPLAY_NAME	String

5.2.6.6. Technical Specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

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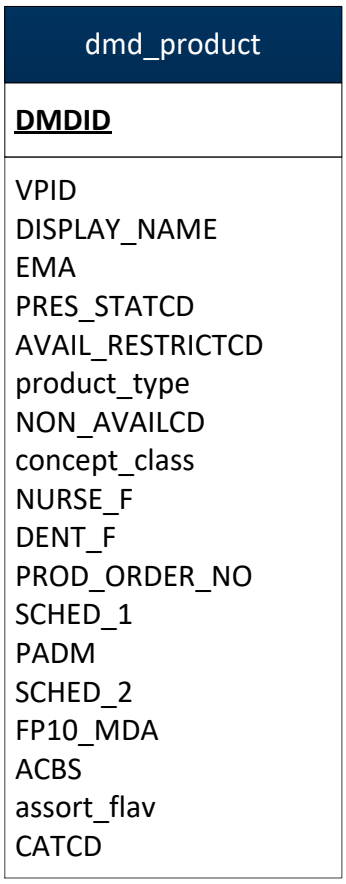
5.2.6.7. Entity Relationship Diagram

This dmd_product entity is not part of the standard dm+d. See Section 6 for details.



5.2.7. Additional Product

5.2.7.1. Type

Decision

5.2.7.2. Description

If another product is required on the prescription then the process should allow the prescriber to go back to the pick list and search for the additional product.

5.2.7.3. Additional Information

None.

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5.2.7.4. Example

Not applicable.

5.2.7.5. Data Requirements

None.

5.2.7.6. Technical Specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

5.2.7.7. Entity Relationship Diagram

None.

5.2.8. Generate Prescription and Record Prescribed Item

5.2.8.1. Type

Process

5.2.8.2. Description

Once all items to be prescribed have been selected and a dose instruction and supply quantity provided for each of these then the prescription is ready to be printed/sent.

For VMPs the NM attribute should be used to provide the description, whilst for AMPs the DESC attribute should be used (both identified by DISPLAY_NAME from dmd_product).

The amount of detail stored in the system will be system dependant but may include the dose, supply quantity, unit of measure and applicable endorsements as described in the previous processes.

The ConceptID and the descriptive text (NM for VMP and DESC for AMP, again both identified by DISPLAY_NAME from dmd_product) used for printing should also be stored in the patient's Electronic Medical Record (EMR).

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5.2.8.3. Additional Information

None.

5.2.8.4. Example

Not applicable.

5.2.8.5. Data Requirements

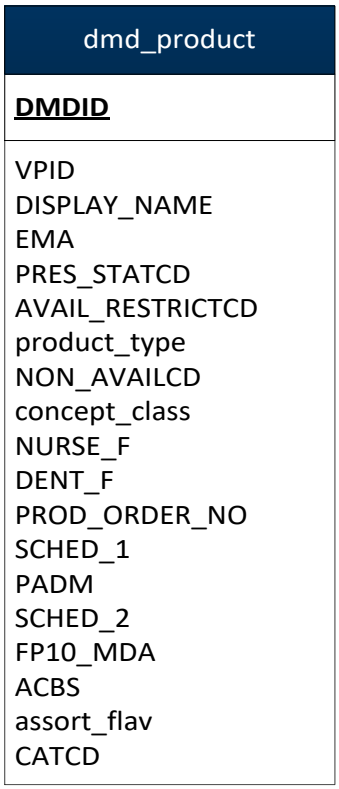
None.

5.2.8.6. Technical Specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

5.2.8.7. Entity Relationship Diagram

This dmd_product entity is not part of the standard dm+d. See section 6 for details.



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6. Generating a Primary Care Products Entity (dmd_product)

6.1. Overview

This section describes the creation of the dmd_product entity which contains attributes that are derived/calculated from the dm+d data.

6.1.1. Primary Care Products Entity

6.1.1.1. Type

Process

6.1.1.2. Description

There are a number of steps required in order to produce a consistent and complete list of products suitable for use in a Primary Care pick list. To simplify processing it may be advisable, although by no means mandatory, to create and maintain an intermediate entity containing both VMPs and AMPs. If this strategy is employed then it is essential that the entity is recreated for each new release of the dm+d. For the purposes of this document this entity has been referred to as dmd_product (the lowercasing is to differentiate it from native dm+d tables).

The columns to include in this intermediate product entity are ultimately system dependent. The columns shown below provide the system with all of the attributes required for the processes described in this document.

Note:

An example structure for the dmd_product entity:

Column name	Description
DMDID	The identifier, either the APID or the VPID (* See comment below)
VPID	The VPID for VMPs or the related VPID from the AMP
DISPLAY_NAME	The NM for VMPs and DESC for AMPs
EMA	Indicates items as requiring additional monitoring in accordance with the European Medicines Agency Additional Monitoring Scheme

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PRES_STATCD	The Prescribing Status for VMPs
AVAIL_RESTRICTCD	Indicates any restrictions on availability for AMPs
product_type (derived)	Indicates whether an item is a generic, brand or manufactured generic
NON_AVAILCD	Indicates where all AMPs for a given VMP are not available
concept_class (derived)	Indicates whether the concept is an AMP or a VMP
NURSE_F	Indicates Nurse Prescribers' formulary for Community Practitioners (in Wales District Nurses and Health Visitors) as listed in Part XVIIB(i) of the Drug Tariff
DENT_F	Indicates Dental Prescribing as listed in Part XVIIA of the Drug Tariff
PROD_ORDER_NO	Product order number
SCHED_1	Indicates DT Part XVIIIA listed products
PADM	Indicates personally administered products
SCHED_2	Indicates items that are part of the Selected List Scheme
FP10_MDA	Indicates items that can be prescribed in instalments on a FP10 MDA form.
ACBS	Indicates borderline substances
assort_flav (derived)	Indicates items where 'Assorted Flavours' could be an applicable endorsement.
CATCD	Indicates controlled drug status
PARALLEL IMPORT	Indicates a parallel import product

* DMDID - Data type and corresponding field size must support the 18 character length integer as defined in dm+d.

1. The initial step is to merge together the VMPs and the AMPs into a single table. When doing this include only valid products where INVALID is NULL or equal to 0, and products that are not only available as part of a combination product, where COMBPRODCD IS NULL OR COMBPRODCD = 1.

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```
SELECT    AMP.APID as DMDID,
          AMP.VPID,
          AMP.DESC as DISPLAY_NAME,
          EMA,
          1 as PRES_STATCD,
          AVAIL_RESTRICTCD,
          2 as product_type,
          0 as NON_AVAILCD,
          2 as concept_class,
          0 as NURSE_F,
          0 as DENT_F,
          PROD_ORDER_NO,
          0 as SCHED_1,
          0 as PADM,
          0 as SCHED_2,
          0 as FP10_MDA,
          0 as ACBS,
          0 as assort_flav,
          0 as CATCD
INTO      dmd_product
FROM      AMP
          INNER JOIN VMP
          ON VMP.VPID = AMP.VPID
          LEFT join AP_INFO
          ON AP_INFO.APID = AMP.APID
WHERE     AMP.INVALID IS NULL
AND       (AMP.COMBPRODCD IS NULL OR AMP.COMBPRODCD = 1)
AND       (PARALLEL_IMPORT IS NULL OR PARALLEL_IMPORT = 0)

UNION ALL
```

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```
SELECT    VPID as DMDID,
          VPID,
          NM as DISPLAY_NAME,
          0 as EMA,
          PRES_STATCD,
          NULL as AVAIL_RESTRICTCD,
          1 as product_type,
          NON_AVAILCD,
          1 as concept_class,
          0 as NURSE_F,
          0 as DENT_F,
          NULL as PROD_ORDER_NO,
          0 as SCHED_1,
          0 as PADM,
          0 as SCHED_2,
          0 as FP10_MDA,
          0 as ACBS,
          0 as assort_flav,
          0 as CATCD
FROM      VMP
WHERE     INVALID IS NULL
AND (COMBPRODCD IS NULL OR COMBPRODCD = 1)
```

2. Assign a value to the SCHED_1 column. This column indicates AMPs from Part XVIIIA of the Drug Tariff. Information from Part XVIIIA of the Drug Tariff is held at AMPP level in the PRESCRIB_INFO entity. There are one or many AMPPs for a given AMP and only where all of these AMPPs are listed in part XVIIIA of the Drug Tariff should the corresponding AMP entry in the products table be marked as Schedule 1. VMPs listed in Part XVIIIA of the Drug tariff are identified through the PRES_STATCD attribute.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE    dmd_product
SET       dmd_product.SCHED_1 = 1
FROM      dmd_product
```

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```
                INNER JOIN AMP
                ON AMP.APID = DMDID
                INNER JOIN AMPP
                ON AMPP.APID = AMP.APID
                INNER JOIN PRESCRIB_INFO
                ON AMPP.APPID = PRESCRIB_INFO.APPID
                AND PRESCRIB_INFO.SCHED_1 = 1

        LEFT OUTER JOIN (SELECT DMDID)
                FROM dmd_product
                INNER JOIN AMP
                ON AMP.APID = DMDID
                INNER JOIN AMPP
                ON AMPP.APID = AMP.APID
                INNER JOIN PRESCRIB_INFO
                ON AMPP.APPID = PRESCRIB_INFO.APPID
                AND PRESCRIB_INFO.SCHED_1 = 0) notschedule_1

                ON dmd_product.DMDID = notschedule_1.DMDID

        WHERE   notschedule_1.DMDID IS NULL
```

3. Assign a value to the product_type flag. This identifies whether an item is a generic, brand or manufactured generic. Manufactured generics are defined as those AMPs that do not have a trademark name but instead use the Recommended International Non-proprietary Name (rINN).

In the initial creation of the dmd_product entity all VMPs are classed as generics and all AMPs are classed as brands. To then determine whether an AMP is actually a manufactured generic its name is compared with that of the related VMP. If the NM from the AMP matches the VMP NM then the AMP is classed as a manufactured generic.

It is recognised that there are some AMP concepts which systems may consider manufactured generics which are not flagged as such by this method. For example the AMP ‘Ibuprofen 400mg tablets film coated’ is not flagged by this step as the VMP does not have the text ‘film coated’ in the NM field.

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This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

Comparing the AMP.NM with the VMP.NM:

```
UPDATE    dmd_product
SET       dmd_product.product_type = 3
FROM      dmd_product
          INNER JOIN AMP
          ON AMP.APID = dmd_product.DMDID
          INNER JOIN VMP
          ON AMP.VPID = VMP.VPID
WHERE     VMP.NM = AMP.NM
AND       product_type = 2
```

Examples of items that would be set to manufactured generics by this step are:

AMP.NM	VMP.NM
Lamotrigine 100mg tablets	Lamotrigine 100mg tablets
Omeprazole 10mg gastro-resistant capsules	Omeprazole 10mg gastro-resistant capsules

Wholesaler items

It should be noted that there are generic products listed as AMPs and AMPPs in dm+d where the supplier (appearing as part of the description) is a wholesaler and not a true manufacturer (E.g. Kent Pharmaceuticals Ltd). However, such wholesalers may also have products that they market within their own livery. These are present only to facilitate the ordering and reimbursement of products against a wholesaler price point. They should not be available in prescribing pick lists. Please refer to ‘Appendix 1 Wholesaler items’ for further information on how to identify these entries.

4. Set the Nurse Prescribable flag. This attribute comes from the PRESCRIB_INFO entity which can be navigated to via the AMPP entity.

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```
UPDATE      dmd_product
SET         dmd_product.NURSE_F = 1
FROM        dmd_product
INNER JOIN  AMP
ON          AMP.APID = DMDID
OR          AMP.VPID = DMDID
INNER JOIN  AMPP
ON          AMPP.APID = AMP.APID
INNER JOIN  PRESCRIB_INFO
ON          AMPP.APPID = PRESCRIB_INFO.APPID
WHERE       PRESCRIB_INFO.NURSE_F = 1
```

5. Set the Dentist Prescribable flag. This attribute comes from the PRESCRIB_INFO entity which can be navigated to via the AMPP entity.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE      dmd_product
SET         dmd_product.DENT_F = 1
FROM        dmd_product
INNER JOIN  AMP
ON          AMP.APID = DMDID
OR          AMP.VPID = DMDID
INNER JOIN  AMPP
ON          AMPP.APID = AMP.APID
INNER JOIN  PRESCRIB_INFO
ON          AMPP.APPID = PRESCRIB_INFO.APPID
WHERE       PRESCRIB_INFO.DENT_F = 1
```

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6. The AVAIL_RESTRICTCD in the AMP entity identifies any restrictions on the availability of the AMP. These examples supply this information for the related VMPs.

The first part of the example sets the AVAIL_RESTRICTCD for all VMPs where one or more associated AMPs are indicated as being available.

The second part of the example sets AVAIL_RESTRICTCD for all VMPs where the associated AMPs have some form of restriction but are not set as “not available”.

The final part of the example looks for a situation where all AMPs related to a VMP are discontinued. Note: There may still be stock available in the supply chain.

These examples have to be executed in this order or a different result will occur.

Using the mechanism illustrated here the VMP will result with the value as defined by the first AMP value it comes across. For example if there are two AMPs associated with a single VMP, one with a value of 6 and the other with a value of 7 the corresponding VMP entry will end up with the first value it comes across, i.e. 6. If this is an area of concern the application could implement a link table to provide a more accurate picture of the status codes.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

The first step is to identify those VMPs where any related AMP has the AVAIL_RESTRICTCD equal to 1.

```
UPDATE      dmd_product
SET         dmd_product.AVAIL_RESTRICTCD = 1
FROM        dmd_product
INNER JOIN  AMP
ON          AMP.VPID = DMDID
WHERE       AMP.AVAIL_RESTRICTCD = 1
```

The second step is to identify where the AVAIL_RESTRICTCD does not equal 1 or 9 (not available).

```
UPDATE      dmd_product
```

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```
SET         dmd_product.AVAIL_RESTRICTCD =AMP.AVAIL_RESTRICTCD
FROM        dmd_product
INNER JOIN AMP
ON          AMP.VPID = DMDID
WHERE       AMP.AVAIL_RESTRICTCD != 1
AND         AMP.AVAIL_RESTRICTCD != 9
AND         dmd_product.AVAIL_RESTRICTCD IS NULL
```

The final step is to set all remaining VMPs to have AVAIL_RESTRICTCD = 9

```
UPDATE      dmd_product
SET         dmd_product.AVAIL_RESTRICTCD = 9
FROM        dmd_product
WHERE       dmd_product.AVAIL_RESTRICTCD IS NULL
```

7. The European Medicines Agency (EMA) flag has to be set for the VMPs since the information is only held in the AMP entity. Where any AMP concept related to the VMP has an EMA value equal to 1 the EMA for the VMP will also be set to one.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE      dmd_product
SET         dmd_product.EMA = AMP.EMA
FROM        dmd_product
INNER JOIN AMP
ON          AMP.VPID = DMDID
WHERE       AMP.EMA = 1
```

8. Set the PADM flag for AMPs and VMPs by navigating to the PRESCRIB_INFO table via the AMPP. Where any AMPP can be found with the PADM flag set to 1 then set the VMP/AMP to 1.

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This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE      dmd_product
SET         dmd_product.PADM = 1
FROM        dmd_product
INNER JOIN  AMP
ON          AMP.VPID = DMDID
OR          AMP.APID = DMDID
INNER JOIN  AMPP
ON          AMPP.APID = AMP.APID
INNER JOIN  PRESCRIB_INFO
ON          AMPP.APPID = PRESCRIB_INFO.APPID
WHERE       PRESCRIB_INFO.PADM = 1
```

9. Set the ACBS flag for AMPs and VMPs by navigating to the PRESCRIB_INFO table via the AMPP. Where any AMPP can be found with the ACBS flag set to 1 then set the VMP/AMP to 1.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE      dmd_product
SET         dmd_product.ACBS = 1
FROM        dmd_product
INNER JOIN  AMP
ON          AMP.VPID = DMDID
OR          AMP.APID = DMDID
INNER JOIN  AMPP
ON          AMPP.APID = AMP.APID
INNER JOIN  PRESCRIB_INFO
ON          AMPP.APPID = PRESCRIB_INFO.APPID
WHERE       PRESCRIB_INFO.ACBS = 1
```

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10. Set the SCHED_2 flag to indicate whether an item is part of the Selected List Scheme. This is held at PRESCRIB_INFO so navigating to AMPP level is necessary.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE      dmd_product
SET         dmd_product.SCHED_2= 1
FROM        dmd_product
INNER JOIN  AMP
ON          AMP.VPID = DMDID
OR          AMP.APID = DMDID
INNER JOIN  AMPP
ON          AMPP.APID = AMP.APID
INNER JOIN  PRESCRIB_INFO
ON          AMPP.APPID = PRESCRIB_INFO.APPID
WHERE       PRESCRIB_INFO.SCHED_2= 1
```

11. Set the FP10_MDA flag to indicate whether an item can be prescribed in instalments on a FP10 MDA form.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE      dmd_product
SET         dmd_product.FP10_MDA = 1
FROM        dmd_product
INNER join  AMP
ON          AMP.VPID = DMDID
            OR AMP.APID = DMDID
            INNER JOIN AMPP
            ON AMP.APID = AMPP.APID
            INNER JOIN PRESCRIB_INFO
            ON PRESCRIB_INFO.APPID = AMPP.APPID
```

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```
WHERE       PRESCRIB_INFO.FP10_MDA = 1
```

12. Set the CATCD flag to indicate whether an item is a controlled drug and if so to which category it belongs. There is no possibility of conflict as a given AMP can only have one VMP.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE      dmd_product
SET         dmd_product.CATCD = CONTROL_INFO.CATCD
FROM        dmd_product
INNER JOIN VMP
ON          VMP.VPID = dmd_product.VPID
INNER JOIN CONTROL_INFO
ON          CONTROL_INFO.VPID = VMP.VPID
```

13. Rather than determine where an ‘Assorted Flavours’ endorsement is applicable in real-time, the assort_flav is a derived attribute within the dmd_product entity which indicates those AMPs where this endorsement can be applied. Note that this attribute is only set for ACBS products.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
UPDATE      dmd_product
SET         dmd_product.assort_flav = 1
FROM        dmd_product
INNER JOIN AMP
ON          dmd_product.DMDID = AMP.APID
WHERE       AMP.SUPPCD = 21014611000001102
AND         AMP.AVAIL_RESTRICTCD != 9
AND         ACBS = 1
```

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6.1.1.3. Data requirements

Entity Name	Column Name	Data Type
VTM	VTMID	SNOMED CT identifier
VTM	NM	String
VMP	VPID	SNOMED CT identifier
VMP	VTMID	SNOMED CT identifier
VMP	INVALID	Integer
VMP	NM	String
VMP	NON_AVAILCD	Integer
VMP	COMBPRODCD	Integer
VMP	PRES_STATCD	Integer
VMP	NON_AVAILCD	Integer
AMP	APID	SNOMED CT identifier
AMP	INVALID	Integer
AMP	VPID	SNOMED CT identifier
AMP	NM	String
AMP	DESC	String
AMP	LIC_AUTHCD	Integer
AMP	EMA	Integer
AMP	COMBPRODCD	Integer
AMP	AVAIL_RESTRICTCD	Integer
AMPP	APID	SNOMED CT identifier
AMPP	APPID	SNOMED CT identifier
PRESCRIBE_INFO	APPID	SNOMED CT identifier
PRESCRIBE_INFO	SCHED_1	Integer
PRESCRIBE_INFO	NURSE_F	Integer
PRESCRIBE_INFO	DENT_F	Integer
PRESCRIBE_INFO	ACBS	Integer
PRESCRIBE_INFO	SCHED_2	Integer
PRESCRIBE_INFO	PADM	Integer
CONTROL_INFO	CATCD	Integer
AP_INFO	PROD_ORDER_NO	String
Derived	assort_flav	Integer

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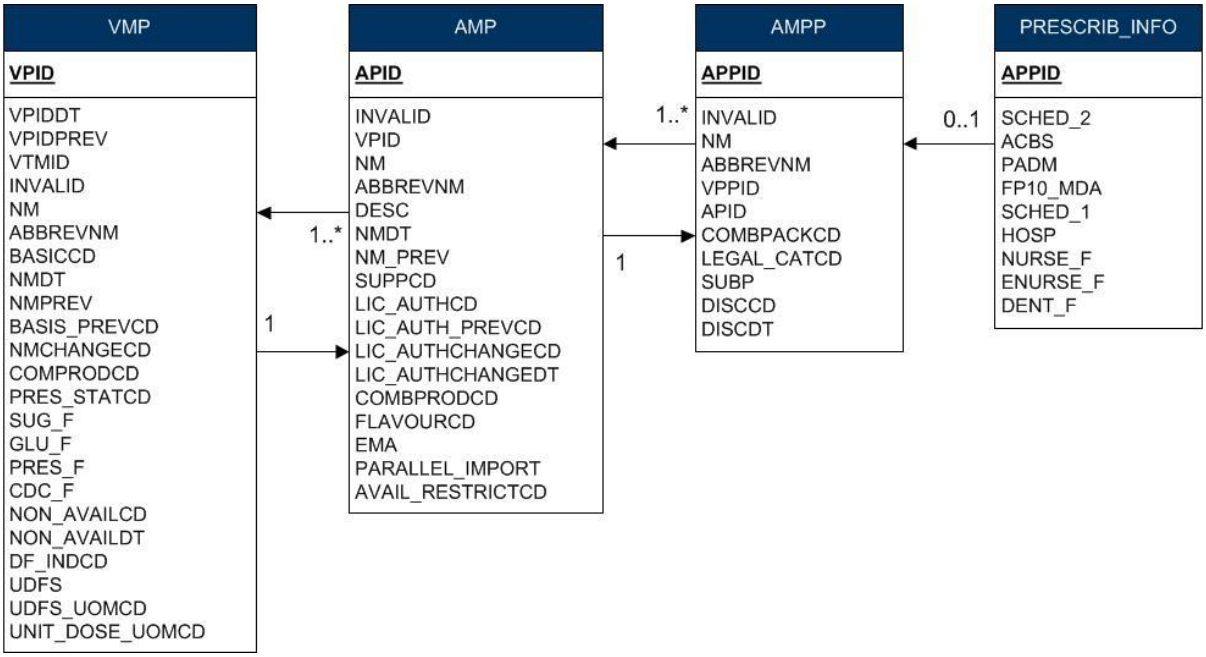
6.1.1.4. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

6.1.1.5. Entity Relationship Diagram



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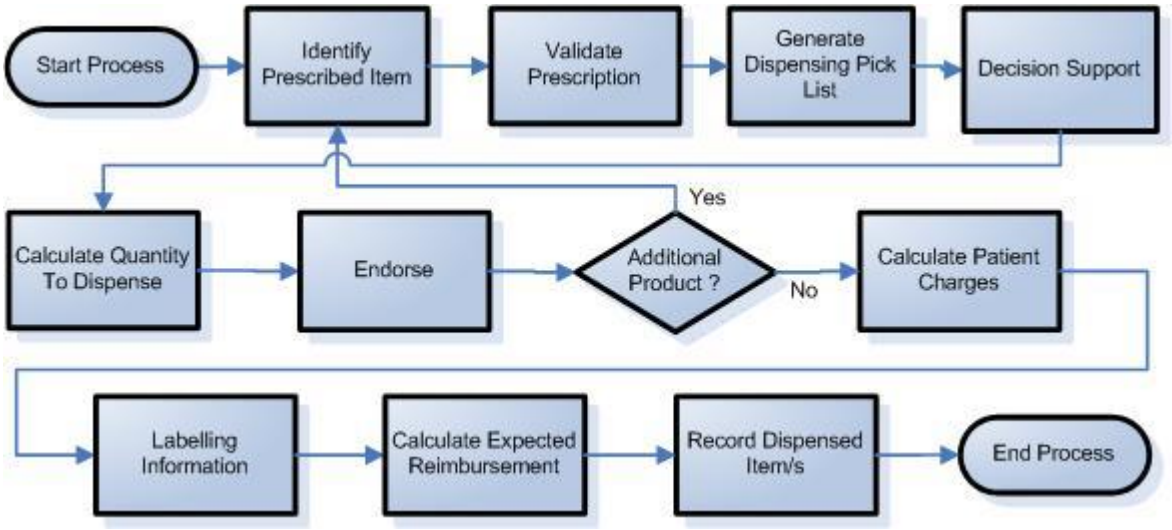
7. Primary Care Dispensing



7.1. Overview

7.1.1 The Primary care dispensing model is an illustration of a theoretical dispensing workflow using dm+d. It is not intended to be a suggestion or replacement for technical system design. The model does not currently cover certain specialist cases for dispensing, for example extemporaneous preparations.

7.1.2 Most electronic systems will use codes as well as text descriptions to identify the prescribed item. A requirement already exists for the NHS Electronic Prescription Service to use dm+d codes and descriptions for both prescribing and dispensing.

7.1.3 Once the prescribed item is identified then the pharmacy system can use dm+d data to check many of the instances where the prescription may not be valid.

7.1.4 The dm+d can support a dispensing pick list of AMPPs. However, to prevent overwhelmingly large pick lists the system may choose to limit the AMPPs displayed to those linked to an internal formulary or stock control system.

7.1.5 Decision support can be performed on the selected items.

7.1.6 In certain instances it may not be possible or practical to dispense the exact quantity specified on the prescription. The dm+d can be used to identify these instances and also provide the pack size to be used in calculations.

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7.1.7 dm+d provides data which can help identify where a dispenser endorsement is required. Where an endorsement is required then the dm+d can often provide the text to be endorsed.

7.1.8 It should be established whether there are more items on the prescription, if there are then the processing above should be repeated for each item.

7.1.9 Once all the items on the form have been processed then the dm+d can be used to identify how many prescription charges are applicable.

7.1.10 dm+d provides the ABBREVNM and NM attribute for both VMPs and AMPs which can be used where there is a labelling requirement.

7.1.11 Some systems may wish to make an estimate of the expected reimbursement for a given prescription.

7.1.12 Once the prescription has been dispensed then it may be necessary to record the dispensed item. This may be because it is a standard part of system functionality, the ETP message requires identification of the dispensed item or the dispensed item was a controlled drug.

7.2. Dispensing Process Flow

7.2.1. Identify Prescribed Item

7.2.1.1. Type

Process

7.2.1.2. Description

Some dispensing systems require that the prescribed item is identified. Where this is a requirement then this may be done in one of two ways depending on the format in which the prescription is received:

1. If the prescription is received on paper then the prescribed item will have to be located via a text based search. This would require that the system implements a prescribing pick list. Details of how this can be achieved can be found in the prescribing section of this guide.

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2. Alternatively if the prescription is received via an ETP message then this message will identify the prescribed item.

As well as the prescribed item the system may also require the input of the dose and supply quantity/unit of measure. Where the prescription is only present on paper then this information should be available from the form. Where an ETP message has been received this information should be contained within the relevant parts of the message from the prescribing system.

7.2.1.3. Additional Information

None.

7.2.1.4. Data Requirements

None.

7.2.1.5. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.1.6. Entity Relationship Diagram

None.

7.2.2. Validate Prescription

7.2.2.1. Type

Process

7.2.2.2. Description

The dm+d has a number of attributes that can be used to check the validity of a given prescription item. Those checks which can be performed using the dm+d are:

Is the item listed in Part XVIIIA of the Drug tariff?

Is the item a non-Drug Tariff appliance?

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Is the item within the Nurse Prescribers' Formulary for Community Practitioners (Part XVIIB(i))?

Is the item within the Dental Prescribing list (Part XVIIA)?

Is the item endorsed with SLS where necessary?

7.2.2.3. Additional Information

For the purposes of this document the validity of a prescription only pertains to the individual items on the form. It does not cover other potential areas for validation on the form as a whole such as digital signatures etc.

7.2.2.4. Example 1

Schedule 1

Using dm+d data it is possible to check whether an item prescribed on an NHS prescription is included in Schedule 1 (Part XVIIIA of the Drug Tariff) and would therefore not be reimbursable by the NHS.

Where the following example returns a result then the prescribed VMP is included in Schedule 1. It is only where all available pack sizes are included in Schedule 1 of the Drug Tariff that the VMP/AMP should be indicated as not prescribable. It is necessary to restrict this check to exclude components of combination products as these all have a PRES_STATCD equal to 2.

The example shown is for Finasteride 1mg tablets:

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      VPID,NM
FROM        VMP
WHERE       PRES_STATCD = 2
AND   (COMBPRODCD IS NULL OR COMBPRODCD = 1)
AND   VMP.VPID = 376675008
```

VPID	NM
376675008	Finasteride 1mg tablets

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The equivalent functionality for prescribed AMPs is shown below. This example is for Actonorm gel:

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      DISTINCT AMP.APID,AMP.NM
FROM        AMP
INNER JOIN  AMPP
ON          AMP.APID = AMPP.APID
INNER JOIN  PRESCRIB_INFO
ON          PRESCRIB_INFO.APPID = AMPP.APPID
WHERE       SCHED_1 = 1
AND         AMP.APID = 12557811000001104
```

APID	NM
12557811000001104	Actonorm gel

It should be noted that private prescriptions may include items from Schedule 1 and therefore this check should not be performed where a private prescription is received.

7.2.2.5. Example 2

Non-Drug Tariff Appliance

Only those AMP appliances included in the current Drug Tariff are prescribable on an NHS prescription. To identify whether a prescribed AMP appliance is in the Drug Tariff the REIMB_STATCD can be used from the PACK_INFO entity. Where any pack linked to a product has a REIMB_STATCD equal to 1 then the product is allowed on an NHS prescription.

The following example identifies whether ‘Durafiber dressing 10cm x 10cm square (Smith & Nephew Healthcare Ltd)’ is in the Drug Tariff, if a result is returned then the item is in the Drug Tariff and therefore prescribable on the NHS:

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

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```
SELECT      AMP.APID, AMP.DESC
FROM        AMP
INNER JOIN  AMPP
ON          AMP.APID = AMPP.APID
AND         LIC_AUTHCD =2
INNER JOIN  PACK_INFO
ON          AMPP.APPID = PACK_INFO.APPID
AND         REIMB_STATCD = 1
WHERE       AMP.APID = 17820011000001106
```

APID	DESC
17820011000001106	Durafiber dressing 10cm x 10cm square (Smith & Nephew Healthcare Ltd)

7.2.2.6. Example 3

Nurse Formulary Check

Where an NHS prescription from a Community Practitioner Nurse Prescriber is received then the system may wish to perform a check to ensure that the item/s prescribed on the form are within the Nurse formulary. The NURSE_F is a flag held in the PRESCRIB_INFO entity at AMPP level.

The following example identifies whether an AMP or VMP is in the Nurse's formulary. Where a result is returned then the concept does appear in the formulary. The concept ID used is for Nicotine 2mg medicated chewing gum sugar free:

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      DISTINCT
            VMP.VPID as ConceptID,
            VMP.NM as Description
FROM        VMP
INNER JOIN  AMP
ON          VMP.VPID = AMP.VPID
INNER JOIN  AMPP
```

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```
ON          AMP.APID = AMPP.APID
INNER JOIN  PRESCRIB_INFO
ON          PRESCRIB_INFO.APPID = AMPP.APPID
AND         NURSE_F =1
WHERE       VMP.VPID = 3559511000001102

UNION ALL

SELECT DISTINCT
            AMP.APID,
            DESC
FROM        AMP
INNER JOIN  AMPP
ON          AMP.APID = AMPP.APID
INNER JOIN  PRESCRIB_INFO
ON          PRESCRIB_INFO.APPID = AMPP.APPID
AND         NURSE_F =1
WHERE       AMP.APID = 3559511000001102
```

ConceptID	Description
3559511000001102	Nicotine 2mg medicated chewing gum sugar free

7.2.2.7. Example 4

Dental Practitioners' Formulary Check

Where an NHS prescription is received from a Dental Practitioner, then the system may wish to perform a check to ensure that the item/s prescribed on the form are within the Dental Practitioners' formulary. The DENT_F is a flag held in the PRESCRIB_INFO entity at AMPP level.

The following example identifies whether an AMP or VMP is in the Dental Practitioners' formulary. Where a result is returned then the concept does appear in the formulary. The concept ID used is for Nicef 250mg capsules (Co-Pharma Ltd):

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```
SELECT DISTINCT
            VMP.VPID as ConceptID,
            VMP.NM as Description
FROM        VMP
INNER JOIN  AMP
ON          VMP.VPID = AMP.VPID
INNER JOIN  AMPP
ON          AMP.APID = AMPP.APID
INNER JOIN  PRESCRIB_INFO
ON          PRESCRIB_INFO.APPID = AMPP.APPID
AND         DENT_F =1
WHERE       VMP.VPID = 435511000001103

UNION ALL

SELECT DISTINCT
            AMP.APID,
            DESC
FROM        AMP
INNER JOIN  AMPP
ON          AMP.APID = AMPP.APID
INNER JOIN  PRESCRIB_INFO
ON          PRESCRIB_INFO.APPID = AMPP.APPID
AND         DENT_F =1
WHERE       AMP.APID = 435511000001103
```

ConceptID	Description
435511000001103	Nicef 250mg capsules (Co-Pharma Ltd)

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7.2.2.8. Example 5

Selected List Scheme Endorsement Check

For further information see the document 'Electronic Prescription Service Guidance for Endorsement'

(https://www.nhsbsa.nhs.uk/pharmacies-gp-practices-and-appliance-contractors/prescribing-and-dispensing/endorsement-guidance)

Where a prescribed item is identified as being part of the Selected List Scheme (SLS) then the dispensing system may wish to prompt the user to ensure that the prescription has been endorsed with SLS. Alternatively, if the prescription is received via an electronic message the system itself may perform this check. The SCHED_2 is a flag held in the PRESCRIB_INFO entity at AMPP level which identifies those items which form part of the Selected List Scheme.

The following example identifies whether a prescribed AMP or VMP is in the Selected List Scheme. Where a result is returned then the concept does appear in the scheme. The concept ID used is for 'Viagra 100mg tablets (Pfizer Ltd)':

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT DISTINCT
                VMP.VPID as ConceptID,
                VMP.NM as Description
FROM            VMP
INNER JOIN      AMP
ON              VMP.VPID = AMP.VPID
INNER JOIN      AMPP
ON              AMP.APID = AMPP.APID
INNER JOIN      PRESCRIB_INFO
ON              PRESCRIB_INFO.APPID = AMPP.APPID
AND             SCHED_2 =1
WHERE           VMP.VPID = 525511000001107

UNION ALL

SELECT DISTINCT
```

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```
                AMP.APID,
                DESC
FROM            AMP
INNER JOIN      AMPP
ON              AMP.APID = AMPP.APID
INNER JOIN      PRESCRIB_INFO
ON              PRESCRIB_INFO.APPID = AMPP.APPID
AND             SCHED_2 =1
WHERE           AMP.APID = 525511000001107
```

ConceptID	Description
525511000001107	Viagra 100mg tablets (Pfizer Ltd)

7.2.2.9. Data Requirements

Entity Name	Column Name	Data Type
AMP	APID	SNOMED CT identifier
AMP	VPID	SNOMED CT identifier
AMP	DESC	String
AMP	LIC_AUTHCD	Integer
AMPP	APPID	SNOMED CT identifier
AMPP	APID	SNOMED CT identifier
REIMB_INFO	APPID	SNOMED CT identifier
REIMB_INFO	FP34D	Integer
VMP	VPID	SNOMED CT identifier
VMP	NM	String
VMP	PRES_STATCD	Integer
VMP	COMBPRODCD	Integer
PRESCRIBE_INFO	APPID	SNOMED CT identifier

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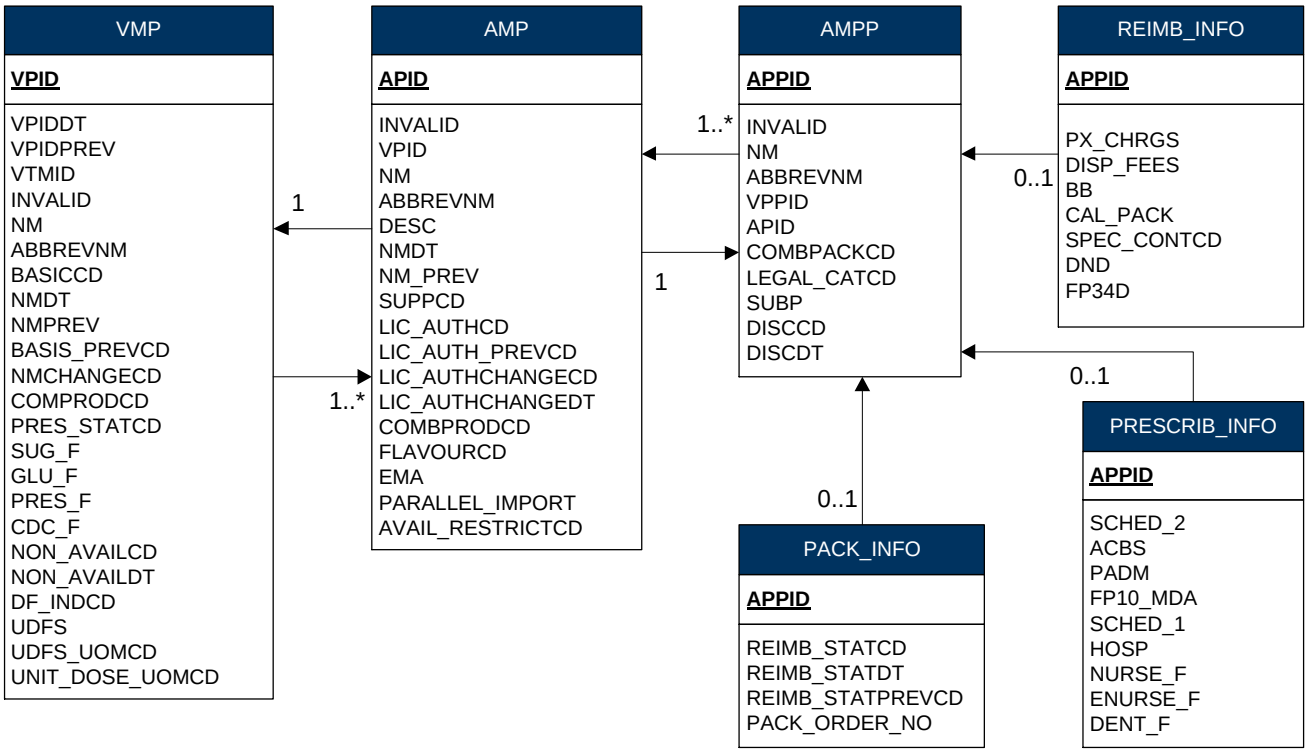
PRESCRIBE_INFO	SCHED_1	Integer
PRESCRIBE_INFO	NURSE_F	Integer
PRESCRIBE_INFO	DENT_F	Integer
PACK_INFO	APPID	SNOMED CT identifier
PACK_INFO	REIMB_STATCD	Integer

7.2.2.10. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.2.11. Entity Relationship Diagram



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7.2.3. Generate Dispensing Pick List

7.2.3.1. Type

Process

7.2.3.2. Description

Dispensing pick lists tend to be a very system specific area of functionality. dm+d can support a pick list of AMPPs from which the dispenser can select the exact item/s dispensed. However it is recognised that a number of systems do not insist that the exact item dispensed is recorded but use variations of product aggregation which often do not require that the specific manufacturer is identified. Where the latter is implemented then system developers should be aware that the Electronic Prescription Service does require a specific AMP/AMPP details where there is more than one pack option to be sent to the pricing authority. A method of navigation from proprietary codes to dm+d concepts will therefore be necessary.

AMPP Pick List

It is not recommended that an AMPP pick list be derived from the prescribed item. The dm+d model is not designed to associate all dispensable AMPPs with a given VMP or AMP.

For example where an oral suspension is prescribed and the prescription does not specify the oral suspension should be sugar-free the pharmacist may dispense a sugar-free version of the oral suspension. The dm+d model holds different VMP concepts for those oral suspensions that are sugar-free and those that are not. Therefore, the prescribed oral suspension cannot be used to navigate to the sugar-free AMPP.

The prescribed VMP item Paracetamol 120mg/5mL oral suspension paediatric cannot be used to navigate to the AMPP Paracetamol 120mg/5mL oral suspension sugar-free (Kent Pharmaceuticals Ltd).

The AMPP pick list is primarily based on the AMPP entity although to allow for additional filtering the AMP entity is referenced.

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The following are suggested filters for the AMPP pick list:

Attribute	Purpose	Relevance as pick list filter	Recommended Defaults
DISCCD	Indicates where an AMPP is no longer available – Note: There may still be stock available in the supply chain.	There are a large number of discontinued AMPPs in the dm+d and excluding these will greatly reduce the size of pick lists.	Where DISCCD IS NULL or DISCCD = 0
AVAIL_RESTRICTCD	Indicates the availability of a given AMP which is inherited by all AMPPs	Systems may wish to use this attribute to allow users to filter out certain product groups, e.g. Specials	Where AVAIL_RESTRICTCD = 1 i.e. no restrictions on availability
LIC_AUTHCD	Indicates the Licensing Authority for an AMP, which is inherited by all AMPPs	Allows the system to restrict the pick list items to those only licensed by a particular authority or not licensed by any authority i.e. unlicensed products	Where LIC_AUTHCD = 1 or 2 or 3 or 4 i.e. excluding 0 which indicates an unlicensed product

Where systems do use an AMPP pick list the number of records being returned can be restricted by linking to only those items held in the formulary.

7.2.3.3. Additional Information

Pharmacy Specific Items

There are a number of AMPs and AMPPs in dm+d that may only be available to a specific chain of pharmacies. For example:

Lloydspharmacy Maximum Strength Ibuprofen 10% gel (Lloyds Pharmacy Ltd)

Warfarin 5mg tablets (The Boots Company Plc)

Where a dm+d dispensing pick list is not linked to a stock file it may be desirable to remove these items. This can be done using the SUPPCD attribute in the AMP entity. The following are identified as suppliers which may only be available to a specific chain of pharmacies:

The Boots Company Plc: SUPPCD of 7497111000001106

Lloyds Pharmacy Ltd: SUPPCD of 4318711000001105

Vantage: SUPPCD of 2090301000001100.

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Tesco Plc: SUPPCD of 7642511000001106

Please note that this list may not be exhaustive as these can only be identified manually.

What can be dispensed against an AMP?

As the DESC field from the AMP entity is used in prescribing, prescriptions for brands or manufactured generics received using dm+d descriptors will always specify a manufacturer. Advice from the Royal Pharmaceutical Society of Great Britain (RPSGB) suggests that where a UK manufacturer is specified then the equivalent parallel import product can be dispensed but an equivalent UK manufacturer's product cannot be dispensed.

For example a prescription is received for 'Cialis 10mg tablets (Eli Lilly & Co Ltd)'. The pharmacy can dispense the AMPP 'Cialis 10mg tablets (Sigma Pharmaceuticals Plc) 4 tablet'.

However, if a prescription were received for 'Ibuprofen 200mg tablets (Bristol Laboratories Ltd)' then the pharmacy cannot supply an AMPP produced by Almus Pharmaceuticals Ltd.

7.2.3.4. Example 1

The following example demonstrates a search of AMPPs beginning with the term 'Serox%' using the defaults suggested above:

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      APPID, AMPP.NM
FROM        AMPP
INNER JOIN  AMP
ON          AMPP.APID = AMP.APID
WHERE       AMPP.NM like 'Serox%'
AND         (AMPP.INVALID IS NULL)
AND         (DISCCD IS NULL OR DISCCD = 0)
AND         (COMBPACKCD IS NULL OR COMBPACKCD =1)
AND         LIC_AUTHCD IN (1, 2, 3, 4)
AND         AVAIL_RESTRICTCD IN (1)
ORDER BY    AMPP.NM
```

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APPID	NM
11270711000001100	Seroxat 10mg tablets (GlaxoSmithKline UK Ltd) 28_tablet 4 x 7 tablets
18612711000001103	Seroxat 20mg tablets (Doncaster Pharmaceuticals Ltd) 30 tablet
16243611000001101	Seroxat 20mg tablets (Lexon (UK) Ltd) 30 tablet
17449411000001102	Seroxat 20mg tablets (Mawdsley-Brooks & Company Ltd) 30 tablet
1931111000001107	Seroxat 20mg tablets (GlaxoSmithKline) 30 tablet 3 x 10 tablets
14001111000001101	Seroxat 20mg/10ml liquid (Doncaster Pharmaceuticals Ltd) 150 ml
2157911000001104	Seroxat 20mg/10ml liquid (GlaxoSmithKline) 150 ml
16243411000001104	Seroxat 20mg/10ml liquid (Lexon (UK) Ltd) 150 ml
18188011000001103	Seroxat 20mg/10ml liquid (Necessity Supplies Ltd) 150 ml
17595411000001101	Seroxat 20mg/10ml liquid (Sigma Pharmaceuticals Plc) 150 ml
1931211000001101	Seroxat 30mg tablets (GlaxoSmithKline) 30 tablet 3 x 10 tablets
16243811000001102	Seroxat 30mg tablets (Lexon (UK) Ltd) 30 tablet
17449611000001104	Seroxat 30mg tablets (Mawdsley-Brooks & Company Ltd) 30 tablet

7.2.3.5. Data Requirements

Entity Name	Column Name	Data Type
AMP	APID	SNOMED CT identifier
AMP	LIC_AUTHCD	Integer
AMP	AVAIL_RESTRICTCD	Integer
AMPP	APID	SNOMED CT identifier
AMPP	NM	String
AMPP	INVALID	Integer

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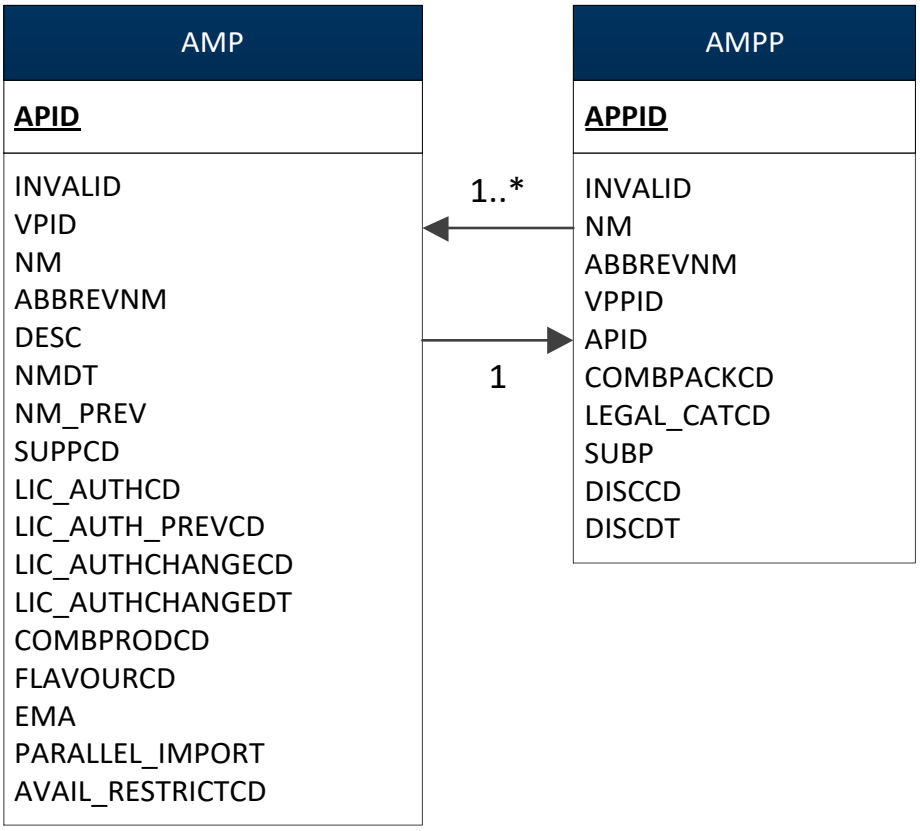
AMPP	DISCCD	Integer
AMPP	COMBPACKCD	Integer

7.2.3.6. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.3.7. Entity Relationship Diagram



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7.2.4. Decision Support

7.2.4.1. Type

Process

7.2.4.2. Description

Once the product to dispense has been selected various forms of decision support can be provided.

Clinical Decision Support

No explicit clinical decision support is available through dm+d.

7.2.4.3. Additional Information

None.

7.2.4.4. Example

None.

7.2.4.5. Data Requirements

None.

7.2.4.6. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.4.7. Entity Relationship Diagram

None.

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7.2.5. Calculate Quantity to Dispense

7.2.5.1. Type

Process

7.2.5.2. Description

In the majority of cases the supply quantity dispensed will match the supply quantity prescribed. However, there are AMPPs with certain characteristics which may make this impractical. The product groups affected are shown in the examples below.

7.2.5.3. Additional Information

None.

7.2.5.4. Example 1

Special Containers

Special Containers are indicated by the SPEC_CONTCD flag held at AMPP level in the REIMB_INFO entity. In cases where the prescriber orders a quantity which does not coincide with an original pack quantity and where the product has special container status then quantity supplied should be that nearest the pack size.

The following pseudo code will return a result where the item is a special container, the example shown is for “Prograf 5mg capsules (Astellas Pharma Ltd) 50 capsule”:

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      AMPP.APPID, AMPP.NM
FROM        AMPP
INNER JOIN  REIMB_INFO
ON          AMPP.APPID = REIMB_INFO.APPID
AND         SPEC_CONTCD =1
WHERE       AMPP.APPID = 2368611000001108
```

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APPID	NM
2368611000001108	Prograf 5mg capsules (Astellas Pharma Ltd) 50 capsule

7.2.5.5. Example 2

Pack size – this now only applies to special containers

It may be necessary to perform calculations using the pack size of the AMPP/s to be dispensed. To retrieve the pack size for a given AMPP the QTYVAL attribute in the VMPP entity should be used. The following example retrieves the pack size for the AMPP, 'Prograf 5mg capsules (Astellas Pharma Ltd) 50 capsule":

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      QTYVAL
FROM        AMPP
INNER JOIN  VMPP
ON          AMPP.VPPID = VMPP.VPPID
WHERE       AMPP.APPID = 2368611000001108
```

QTYVAL
50

7.2.5.6. Data Requirements

Entity Name	Column Name	Data Type
AMPP	APPID	SNOMED CT identifier
AMPP	NM	String
REIMB_INFO	APPID	SNOMED CT identifier
REIMB_INFO	SPEC_CONTCD	Integer
VMPP	QTYVAL	Real
VMPP	VPPID	SNOMED CT identifier

7.2.5.7. Technical specifications

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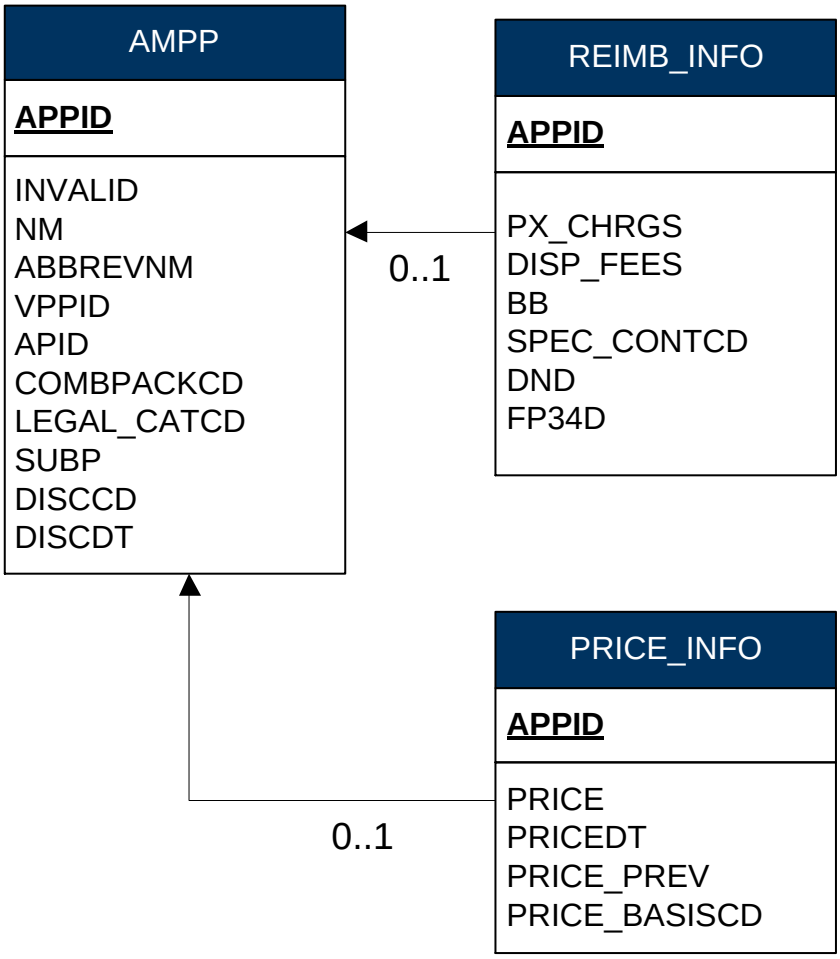
For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.5.8. Entity Relationship Diagram



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7.2.6. Endorse

For further information see the document 'Electronic Prescription Service Guidance for Endorsement'

(http://www.nhsbsa.nhs.uk/PrescriptionServices/1972.aspx)

7.2.6.1. Type

Process

7.2.6.2. Description

The Drug Tariff rules regarding when a particular type of endorsement should be applied are complex and often involve determining whether the prescribed or dispensed item belongs to a certain group of products. The application of Drug Tariff rules is beyond the scope of this guide, however below is a list of product groups commonly requiring endorsements which the dm+d can be used to identify.

7.2.6.3. Broken Bulk

Items for which Broken Bulk can be claimed are identified by the BB attribute in the REIMB_INFO entity where this attribute is set to 1. Broken Bulk endorsements MUST never be set up as a default in dispensing endorsement systems.

7.2.6.4. Example 1

The following example will return a result where Broken Bulk can be claimed for a given AMPP. This example is for "Labetalol 100mg tablets (Kent Pharmaceuticals Ltd) 56 tablet":

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      AMPP.APPID ,AMPP.NM
FROM        AMPP
INNER JOIN  REIMB_INFO
ON          REIMB_INFO.APPID = AMPP.APPID
AND         REIMB_INFO.BB = 1
WHERE       AMPP.APPID = 1390611000001106
```

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APPID	NM
1390611000001106	Labetalol 100mg tablets (Kent Pharmaceuticals Ltd) 56 tablet

7.2.6.5. Special Containers

Where the dispenser has had to dispense a quantity differing from the prescribed quantity because the dispensed item is a special container then an endorsement is required.

The identification of special containers is covered in the section 7.2.5.4 Calculate Quantity to Dispense under example 1.

7.2.6.6. Non-Drug Tariff VMPs

Whether or not a VMP is in the Drug Tariff is determined by navigating to the DTINFO entity at VMPP level. The PAY_CATCD indicates to which category of the Drug Tariff a VMPP belongs. Where there are no VMPPs attached to a given VMP that are in the DTINFO entity then the VMP is not in the Drug Tariff.

7.2.6.7. Example 2

The following example determines whether a given VMP (Sodium bicarbonate mixture paediatric) is in the Drug Tariff.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      VMP.NM, PAY_CATCD
FROM        VMP
INNER JOIN  VMPP
ON          VMP.VPID = VMPP.VPID
INNER JOIN  DTINFO
ON          DTINFO.VPPID = VMPP.VPPID
WHERE       VMP.VPID = 316949009
```

In this instance no result is returned meaning that the VMP is not in the Drug Tariff.

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7.2.6.8. Drug Tariff Sections

Using the PAY_CATCD attribute above VMPs appearing in certain parts of the Drug Tariff can be identified. The DT_PAYMENT_CATEGORY entity can be used to determine in which specific part of the Drug Tariff a given VMP appears.

7.2.6.9. Example 3

The following example identifies those VMPs which appear in Part IXR of the Drug Tariff:

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      VMP.VPID, VMP.NM
FROM        VMPP
INNER JOIN  DTINFO
ON          VMPP.VPPID= DTINFO.VPPID
INNER JOIN  VMP
ON          VMP.VPID = VMPP.VPID
AND         PAY_CATCD = 8
```

VPID	NM
3432411000001101	Blood glucose biosensor testing discs
3432511000001102	Blood glucose biosensor testing strips
16548411000001101	Blood glucose colorimetric cassette
3432611000001103	Blood glucose colorimetric testing strips
17428511000001106	Blood glucose colorimetric testing tips
7596711000001100	Blood ketones testing strips
3475111000001102	International normalised ratio testing strips
14607211000001105	Neuropathy sweat detection pads
3377211000001107	Urine glucose testing strips
3377311000001104	Urine ketones testing strips
3377411000001106	Urine protein testing strips

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7.2.6.10. More than one available pack on dispensed item

This is determined by looking at all the AMPPs attached to a given AMP and using the DISCCD flag on these AMPPs to only consider those that are available.

The AMP for a selected AMPP can be found through the APID attribute of the AMPP entity.

7.2.6.11. Example 4

The following example determines how many available packs there are for a given AMP. This example is for: 'Ibuprofen 400mg tablets (Almus Pharmaceutical Ltd)'.

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      COUNT(*) as NumberOfPacks
FROM        AMP
INNER JOIN  AMPP
ON          AMP.APID = AMPP.APID
AND         (DISCCD IS NULL or DISCCD = 0)
WHERE       AMP.APID = 9816611000001104
```

NumberOfPacks
4

7.2.6.12. Endorsement Text

Once it has been established that an endorsement is required dm+d can be used to provide the text for that endorsement where details of the medicine or device are required. Below is a list of endorsements where the data to be endorsed can be sourced from the dm+d.

Brand endorsement

Where a brand endorsement is required for a paper prescription then the DESC field from the AMP entity should be used.

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Pack Size

Where a pack size endorsement is required for the dispensed AMPP then the QTYVAL attribute in the VMPP entity should be used. To determine the QTYVAL for a given AMPP the same processing as that illustrated in section 7.2.5.5 Calculate Quantity to Dispense under example 2 should be used.

Price

Price endorsement is only required where there is no indicative price in dm+d.

Where a price endorsement is required then the PRICE attribute within the PRICE_INFO entity should be used. Where PRICE attribute is set to 0 or returns a null value, the system will need to prompt the user for a manual price endorsement.

It should be noted that price endorsement must be for the pack from which the product was supplied and not for the quantity supplied.

(Information on price may also be useful in sorting prescriptions to help comply with requirements for submitting prescription forms. For example NHS Prescription Services asks contractors to sort prescriptions for expensive items separately. If the price of the prescribed item is > £100 it is categorised as expensive for this purpose).

7.2.6.13. Supplier

The supplier name is an attribute of the SUPPLIER entity. For a given AMPP this is illustrated by the following example:

7.2.6.14. Example 5

This example is for the AMPP ‘Amoxicillin 125mg/5ml oral suspension sugar free (Actavis UK Ltd) 100 ml (15141110000001109).

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      *DESC
FROM        SUPPLIER
INNER JOIN  AMP
ON          AMP.SUPPCD =.SUPPLIER.CD
INNER JOIN  AMPP
ON          AMPP.APID = AMP.APID
WHERE       APPID = 15141110000001109
```

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*Note some Relational Database Management Systems (RDBMS) will see DESC as a keyword, which may affect the pseudo code.

DESC
Actavis UK Ltd

7.2.6.15. Imported unlicensed medicines and specials (not listed in Part VIIIB of Drug Tariff)

Preparations manufactured under an MHRA specials licence or sourced under an MHRA importers licence require endorsement.

Imported unlicensed medicines can be identified using the availability restrictions flag at AMP where this will be set to Imported. In addition the supplier will be “Imported” plus the name of the country (e.g. Imported (Belgium)).

Specials that are not listed in Part VIIIB can be identified using dm+d from the Supplier’s name. This is straightforward for the Specials where there is one supplier name (Special Order). It should be noted that the availability restrictions flag ‘special’ will not differentiate between Drug Tariff Specials and Special Order products.

7.2.6.16. Data Requirements

Entity Name	Column Name	Data Type
AMPP	APPID	SNOMED CT identifier
AMPP	NM	String
REIMB_INFO	APPID	SNOMED CT identifier
REIMB_INFO	SPEC_CONTCD	Integer
VMPP	QTYVAL	Real
VMPP	VPPID	SNOMED CT identifier

7.2.6.17. Technical specifications

For technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

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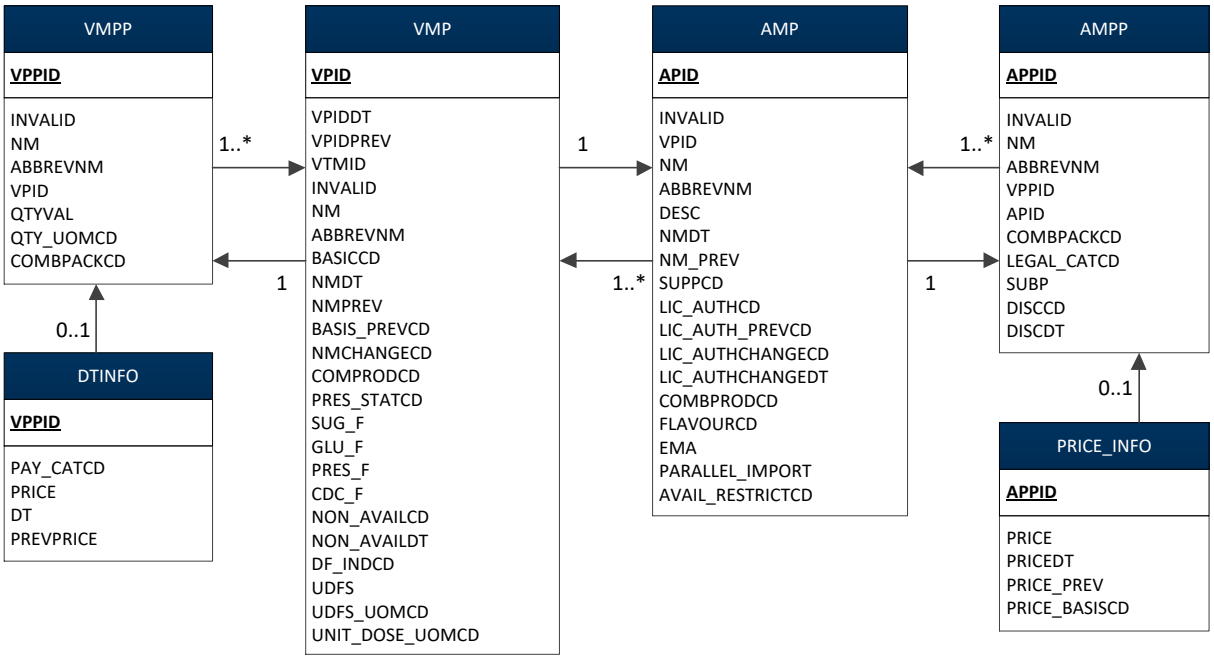
7.2.6.18. Entity Relationship Diagram



7.2.7. Additional Product

7.2.7.1. Type

Decision

7.2.7.2. Description

If other products are to be dispensed then the process should allow the dispenser to go back to identify the additional product.

7.2.7.3. Additional Information

None.

7.2.7.4. Example

Not applicable.

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7.2.7.5. Data Requirements

None.

7.2.7.6. Technical Specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.7.7. Entity Relationship Diagram

None.

7.2.8. Calculate Patient Charges

7.2.8.1. Type

Process

7.2.8.2. Description

Prescription Charges

The PX_CHRGS attribute in the REIMB_INFO entity may be used by the system to inform the dispenser of how many prescription charges a particular item incurs. However further calculation will be required on the prescription form as a whole to determine the total number of charges according to Drug Tariff rules if the patient is not exempt from charges.

7.2.8.3. Additional Information

None.

7.2.8.4. Example 1

The following example determines the number of charges for a given AMPP, This example is for ‘Canesten Combi 500mg pessary and 2% cream (Bayer Plc) 1 pack 1 x (1 pessary + 10g)’:

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```
SELECT      NM,
            PX_CHRGS
FROM        AMPP
INNER JOIN  REIMB_INFO
ON          AMPP.APPID = REIMB_INFO.APPID
WHERE       AMPP.APPID = 3365011000001103
```

NM	PX_CHRGS
Canesten Combi 500mg pessary and 2% cream (Bayer Plc) 1 pack 1 x (1 pessary + 10g)	2

7.2.8.5. Data Requirements

Table Name	Column Name	Data Type
AMPP	APPID	SNOMED CT identifier
AMPP	NM	String
REIMB_INFO	APPID	SNOMED CT identifier
REIMB_INFO	PX_CHARGS	Integer

7.2.8.6. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

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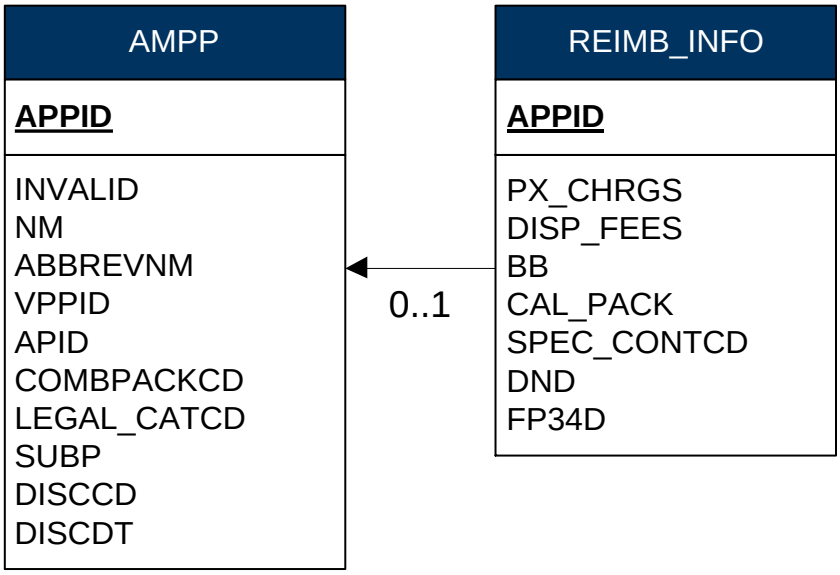
7.2.8.7. Entity Relationship Diagram



7.2.9. Labelling Information

7.2.9.1. Type

Process

7.2.9.2. Description

The ABBREVNM field within the AMP and VMP entities is intended only to be used on labels. This is populated for prescribable items where the NM is greater than 60 characters and there is a legal requirement to label the item. It is not populated for other concepts and in these instances the system user may choose to create a suitable label name. It is important to note that the NM field can be well in excess of 60 characters.

7.2.9.3. Additional Information

None.

7.2.9.4. Example 1

The following example retrieves the ABBREVNM or the NM for a given AMPP assuming a prescribed VMP, example used “Fluticasone 125micrograms/dose / Salmeterol 25micrograms/dose inhaler CFC free”:

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```
SELECT      LABEL_NAME = CASE
WHEN        VMP.ABBREVNM IS NOT NULL THEN
            VMP.ABBREVNM
            ELSE
            VMP.NM
            END
FROM        VMP
INNER JOIN  AMP
ON          VMP.VPID = AMP.VPID
INNER JOIN  AMPP
ON          AMPP.APID = AMP.APID
WHERE       AMPP.APPID = 2830811000001102
```

LABEL_NAME
Fluticasone 125microg / Salmeterol 25microg/dose inh CFC free

If the prescribed item were an AMP then the same processing would be required but using the NM and ABBREVNM from the AMP entity.

7.2.9.5. Data Requirements

Table Name	Column Name	Data Type
VMP	VPID	SNOMED CT identifier
VMP	ABBREVNM	String
VMP	NM	String
AMP	VPID	SNOMED CT identifier
AMP	APID	SNOMED CT identifier
AMPP	APID	SNOMED CT identifier
AMPP	APPID	SNOMED CT identifier

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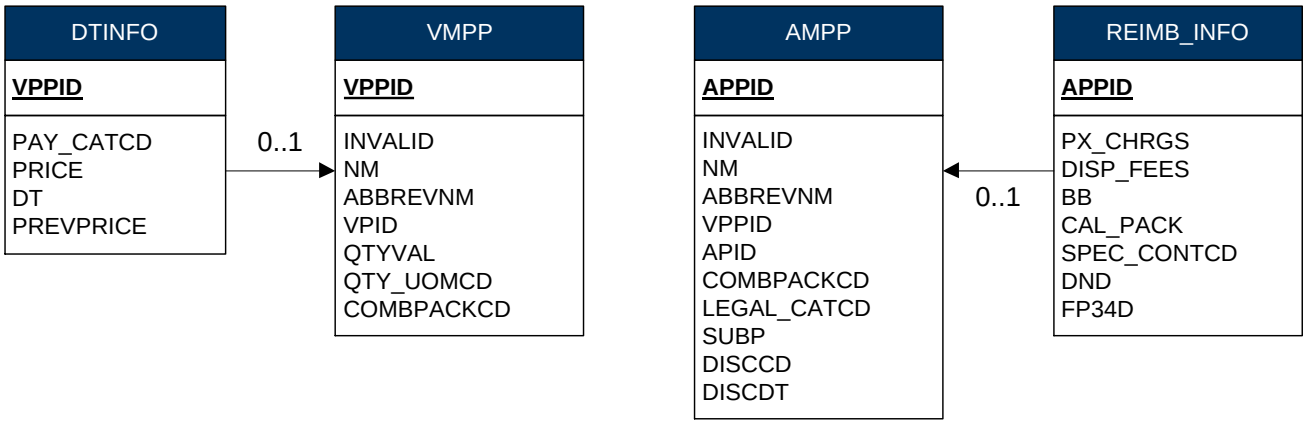
7.2.9.6. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.9.7. Entity Relationship Diagram



7.2.10. Calculate Expected Reimbursement

7.2.10.1. Type

Process

7.2.10.2. Description

As with endorsing the rules surrounding how reimbursement is calculated are beyond the scope of this guide. However, it is recognised that some pharmacy systems may wish to calculate the expected reimbursement from the NHS Prescription Services, NHS Business Services Authority. Where this is implemented then there are instances where the Drug Tariff price will be required. To identify the Drug Tariff price for a given VMPP the PRICE field in the DTINFO entity should be used.

Note: Prices in the Drug Tariff are indicative only so any calculations are also indicative. For further information about basic prices see Part II Clause 8 of the Drug Tariff.

7.2.10.3. Additional Information

None.

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7.2.10.4. Example 1

The following example identifies the basic price for ‘Phenindione 25mg tablets, 28 tablets’ in the Drug Tariff (as at July 2020).

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      PRICE
FROM        VMPP
INNER JOIN  DTINFO
ON          VMPP.VPPID = DTINFO.VPPID
WHERE       VMPP.VPPID = 13468311000001102
```

PRICE
60000

The price displayed is expressed in pence (£600.00).

One of the other factors in calculating expected payment is to consider the dispensing fees received for each dispensed item. To calculate the number of dispensing fees a pharmacy is entitled to per item the DISP_FEES field from the REIMB_INFO entity should be used.

7.2.10.5. Example 2

The following example identifies the number of dispensing fees that the pharmacy will receive from the pricing authority for the AMPP ‘Entocort 2mg/100ml enema (AstraZeneca UK Ltd) 7 enema 7 x (1 tablet + 1 diluent)’:

This pseudo code is provided for illustration only and due to the nature and variety of data manipulation languages may not constitute complete or correct SQL syntax. It is not intended for use directly in an application.

```
SELECT      DISP_FEES
FROM        AMPP
INNER JOIN  REIMB_INFO
ON      AMPP.APPID = REIMB_INFO.APPID
WHERE       AMPP.APPID = 3954511000001106
```

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DISP_FEES
2

Please note that the calculation of total dispensing fees to be received for a prescription can only be calculated on the prescription as a whole once all items have been identified as Drug Tariff rules need to be applied.

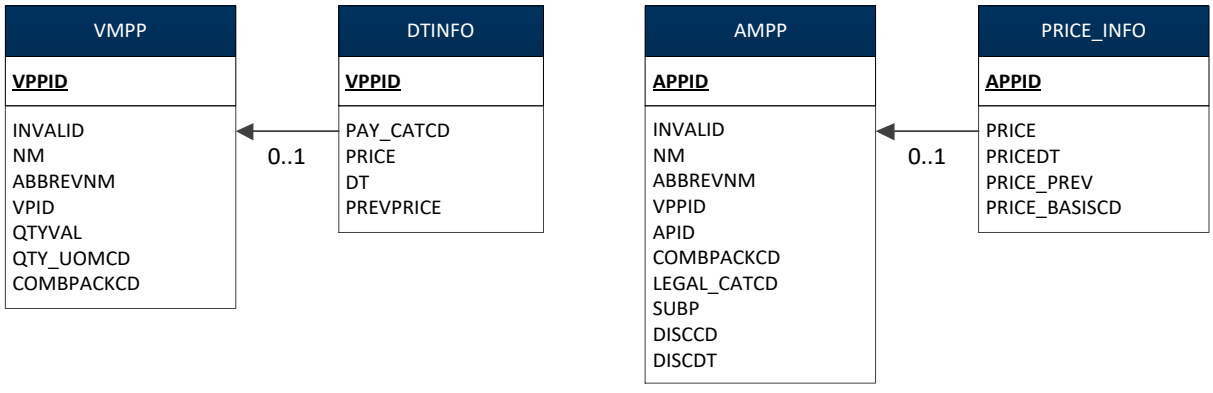
7.2.10.6. Data Requirements

Entity Name	Column Name	Data Type
VMPP	VPPID	SNOMED CT identifier
DTINFO	VPPID	SNOMED CT identifier
DTINFO	PRICE	real
AMPP	APPID	SNOMED CT identifier
REIMB_INFO	APPID	SNOMED CT identifier
REIMB_INFO	DISP_FEES	Integer

7.2.10.7. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.10.8. Entity Relationship Diagram



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7.2.11. Record Dispensed Item/s

7.2.11.1. Type

Process

7.2.11.2. Description

Once the items have been selected and dispensed they can then be recorded in the dispensing system.

7.2.11.3. ETP Dispense Message

Although a system may not currently record the dispensed item as a matter of course, EPS necessitates that in certain instances the AMP or AMPP dispensed is identified in the ETP message sent to the pricing authority. Where the AMPP is sent then the NM attribute from the AMPP entity should be used where a description is required. Where an AMP is sent then the DESC attribute should be used where a description is required.

7.2.11.4. Controlled Drugs

Where a controlled drug is in Schedule 2 then once the patient collects the medicine it must be recorded in the CD register. Schedule 2 controlled drugs can be identified by using the CATCD attribute of the CONTROL_INFO entity which is held at VMP level.

This attribute can also be used to identify other categories of controlled drugs such as Schedule 3 and 4 where there are specific requirements for recording and handling including validity (expiry) of a prescription that may differ from non controlled drugs.

7.2.11.5. Additional Information

The system may additionally record any endorsements made and the quantity dispensed.

7.2.11.6. Example

The following example will return a result where a given AMP or VMP is a schedule 2 controlled drug; this example is for ‘Fentanyl 1.6mg lozenges’:

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```
SELECT      VMP.VPID as ConceptID,
            VMP.NM as Description
FROM        VMP
INNER JOIN  CONTROL_INFO
ON          CONTROL_INFO.VPID = VMP.VPID
AND         CATCD IN (2, 3)
WHERE       VMP.VPID = 134806003
UNION ALL
SELECT      APID, AMP.DESC
FROM        VMP
INNER JOIN  AMP
ON          VMP.VPID = AMP.VPID
INNER JOIN  CONTROL_INFO
ON          CONTROL_INFO.VPID = VMP.VPID
AND         CATCD IN (2, 3)
WHERE       AMP.APID = 134806003
```

ConceptID	Description
134806003	Fentanyl 1.6mg lozenges

7.2.11.7. Data Requirements

Entity Name	Column Name	Data Type
VMP	VPID	SNOMED CT identifier
VMP	NM	String
CONTROL_INFO	VPID	SNOMED CT identifier
CONTROL_INFO	CATCD	Integer
AMP	APID	SNOMED CT identifier
AMP	DESC	String

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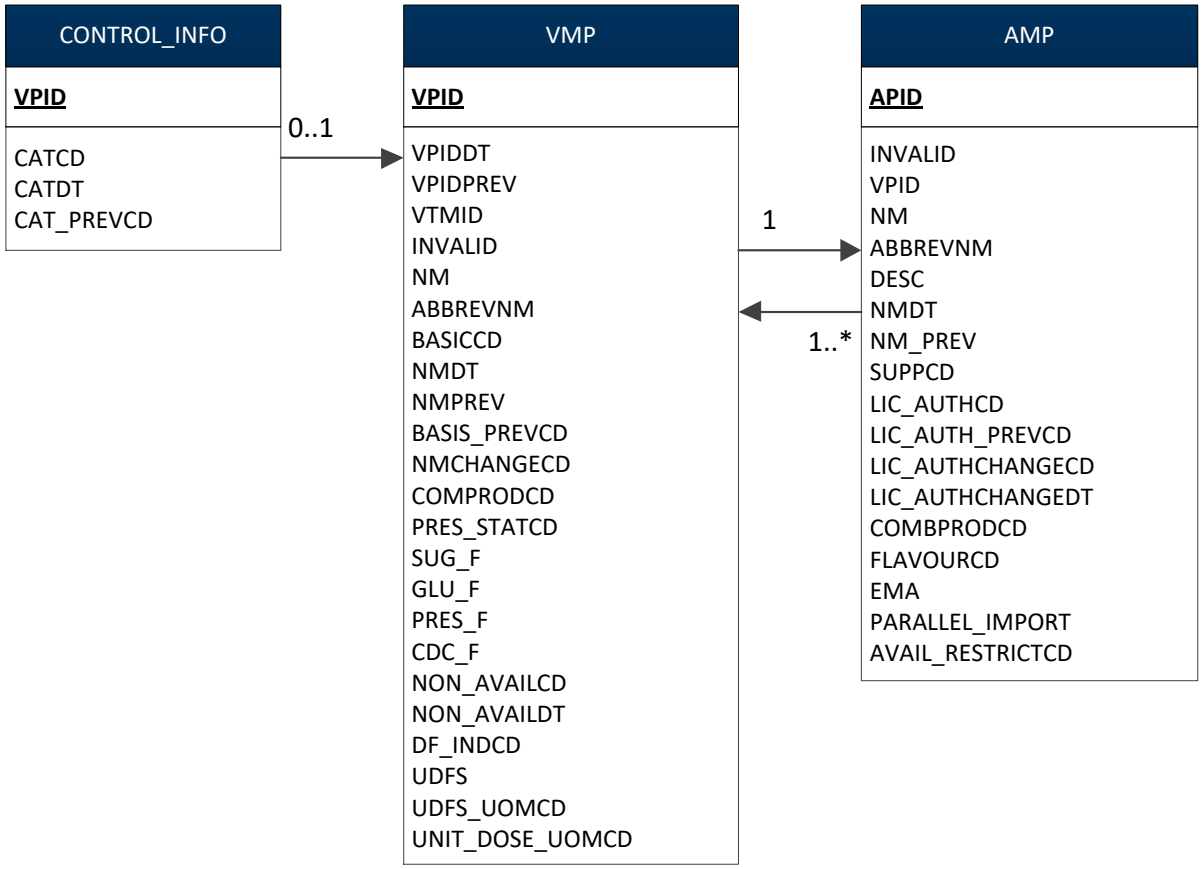
7.2.11.8. Technical specifications

For Technical Specifications please see: Technical Specification of Data Files for Release 2 of the Dictionary of Medicines and Devices (dm+d).

7.2.11.9. Entity Relationship Diagram



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8. Appendix 1 Wholesaler items

Aims

There are a number of wholesaler products included in dm+d to support national reimbursement policies that are not real products. These items should not be available for prescribing.

This implementation guidance therefore intends to support those who are looking to implement systems to support prescribing by filtering out these products.

Background

The NHSBSA dm+d files are available via the NHS Digital Technology Reference Data Update Distribution (TRUD) Service portal.

The dm+d data includes AMPs and AMPPs with different supplier types (e.g. manufacturer, wholesaler etc.) in order to support different use cases including aspects of 'reimbursement' which is one of the original primary use cases of dm+d.

A generic AMP description listed on dm+d and associated with the wholesaler name could therefore reflect any one of several AMPs meeting this description that are fundamentally being 'wholesaled'. In such instances, where an AMP associated with a wholesaler does not represent a specific generic AMP, these AMPs could be described as not being true AMPs.

For example taking the generic AMP description Azithromycin 250mg capsules (A A H Pharmaceuticals Ltd), this wholesaler could at the time of writing be supplying any of the following:

Azithromycin 250mg capsules (Crescent Pharma Ltd)
Azithromycin 250mg capsules (DE Pharmaceuticals)
Zithromax 250mg capsules (DE Pharmaceuticals)
Azithromycin 250mg capsules (Dawa Ltd)
Azithromycin 250mg capsules (Mylan)
Zithromax 250mg capsules (Pfizer Ltd)
Azithromycin 250mg capsules (Phoenix Healthcare Distribution Ltd)
Azithromycin 250mg capsules (Somex Pharma)
Azithromycin 250mg capsules (Teva UK Ltd)
Azithromycin 250mg capsules (Zentiva)

Generic wholesaler AMP and AMPP entries on dm+d where no true generic exists can be filtered out using the following rules:

- **For any picking list the first step should be to identify AMP and AMPP entries in the dm+d files that are marked as invalid and filter these out**
- **Identify AMP and AMPP entries in the dm+d files for the following suppliers (companies that have communicated that they have a wholesaler function) listed in the table below:**

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List of supplier names*	SNOMED Concept IDs
A A H Pharmaceuticals Ltd	3144701000001104
Accord Healthcare Ltd	18471011000001103
Alliance Healthcare (Distribution) Ltd	2089901000001107
Actavis UK Ltd	3875201000001104
AM Distributions (Yorkshire) Ltd	22343311000001100
Aspire Pharma Ltd	16666911000001109
Colorama Pharmaceuticals Ltd	22635811000001102
CST Pharma Ltd	24059811000001102
Cubic Pharmaceuticals Ltd	21592311000001103
DE Pharmaceuticals	2268901000001109
Ennogen Healthcare Ltd	20492111000001104
Ennogen Pharma Ltd	20492211000001105
Ethigen Ltd	21367711000001102
Fontus Health Ltd	20458011000001108
Icarus Pharmaceuticals Ltd	25748611000001100
J M McGill Ltd	22403711000001101
Kent Pharmaceuticals Ltd	2073701000001100
Lexon (UK) Ltd	3415501000001104
Mawdsley-Brooks & Company Ltd	15125811000001100
Medihealth (Northern) Ltd	38727911000001101
Niche Pharma Ltd	23953011000001103
Pharma-z Ltd	28167011000001100
Phoenix Healthcare Distribution Ltd	17845311000001104
Rivopharm (UK) Ltd	28601711000001107
Sandoz Ltd	2074301000001102
Sigma Pharmaceuticals Plc	2087601000001106
Sun Pharmaceutical Industries Europe B.V.	14937711000001109
Teva UK Ltd	3849901000001105
Waymade Healthcare Plc	2091401000001103
*List up to date as of April 2021 and will be checked biannually	

- **Of the AMPs and AMPPs identified as being associated with the suppliers listed in the above table, filter out AMPs and AMPPs where there is no Global Trade Item Number (GTIN) authored in dm+d. This filtered list represents wholesaler AMPs and AMPPs where no true actual generic exists**

Note: This rule is necessary as some companies have a mixed portfolio of supplier activity e.g. wholesaling and manufacturing. For the latter, there will be GTINs authored in the dm+d and users will still need to include these AMPs and AMPPs.

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These rules will filter out generic wholesaler AMP/AMPP entries on dm+d where no true actual generic exists. The AMP/AMPPs remaining will all reflect real / actual medicinal products and packs.

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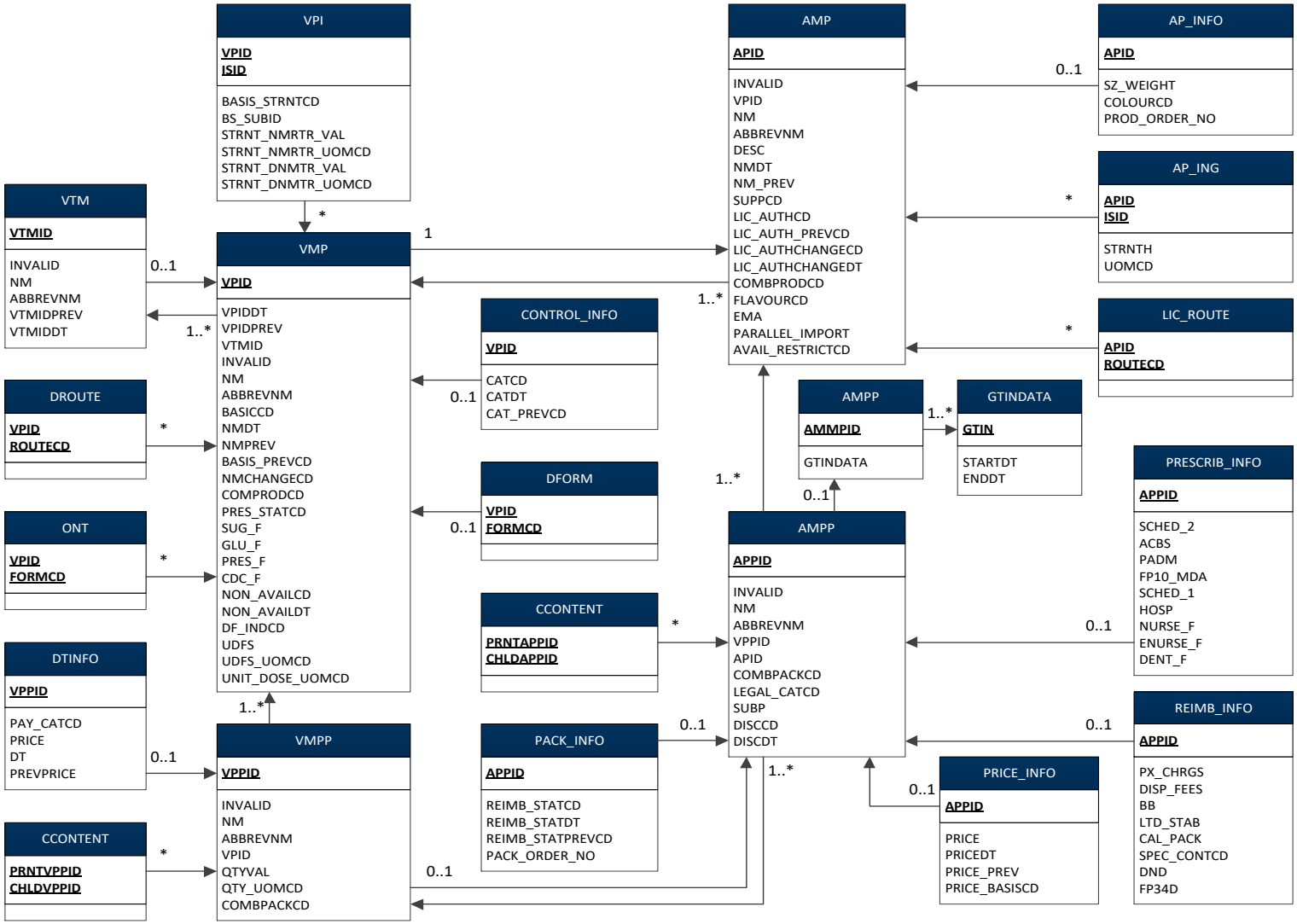
9. Appendix 2 Data Model



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