

Design Guidance

Medications Management – Medications Views

Wednesday, 19 December 2007
Version 2.0.0.0

Prepared by
Microsoft

PREFACE

Documents replaced by this document

Document Title	Version
Design Guidance – Medications Management – Medications Views	1.0.0.0

Documents to be read in conjunction with this document

Document Title	Version
Design Guidance – Medications Management – Drug Administration	2.0.0.0
Design Guidance – Time Display	1.0.0.0
Design Guidance – Date and Time Input	1.0.0.0
Design Guidance – Patient Banner	2.0.0.0

This document and/or software ("this Content") has been created in partnership with the National Health Service (NHS) in England. Intellectual Property Rights to this Content are jointly owned by Microsoft and the NHS in England, although both Microsoft and the NHS are entitled to independently exercise their rights of ownership. Microsoft acknowledges the contribution of the NHS in England through their Common User Interface programme to this Content. Readers are referred to www.cui.nhs.uk for further information on the NHS CUI Programme.

All trademarks are the property of their respective companies. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

© Microsoft Corporation 2007. All rights reserved.

TABLE OF CONTENTS

1	Introduction	1
1.1	Customer Need	1
1.2	Scope	1
1.2.1	In Scope	2
1.2.2	Out of Scope	2
1.2.3	Dependencies and Assumptions	3
1.3	Key Principles	3
2	Recommendations and Guidance	4
2.1	Medications Framework	4
2.1.1	Medications Views	4
2.1.2	Common Controls	6
2.2	Medications List View	8
2.2.1	Controls	9
2.2.2	Structure and Layout	10
2.3	Displaying a Medication Line	12
2.3.1	Structure	12
2.3.2	Layout	13
2.3.3	Text Formatting	14
2.4	Look-Ahead Scroll Bar	14
2.4.1	Structure and Layout	15
2.4.2	Notification Contents	16
2.4.3	Interactions	18
2.5	Filtering	18
2.5.1	Controls for Current and Past	19
2.5.2	Filtering Past Medications	21
2.6	Recent Past Medications	22
2.6.1	Displaying a Recent Past Notification	22
2.7	Grouping	24
2.7.1	Grouping a List of Medications	24
2.7.2	Handling Duplicates in Groups	26
2.8	Sorting	28
2.8.1	Sorting Using Column Headings	28
2.9	Level of Detail	30
2.9.1	The Level of Detail Control	30
2.9.2	Information Display for Specific Levels of Detail	31
2.10	Selection and Action	33
2.10.1	Selection	33
2.10.2	Context Menus	33

2.11	All Details	34
2.11.1	Displaying All Details for One Medication	34
3	<i>Document Information</i>	36
3.1	Terms and Abbreviations.....	36
3.2	Nomenclature	36
3.2.1	Body Text	36
3.2.2	Cross References.....	36
3.3	References	37

1 INTRODUCTION

This document provides design guidance for Medications Views. It describes the area of focus, provides guidance and recommendations and explains the rationale behind the guidance and recommendations.

This document is intended for use by anyone whose role includes screen design, or the implementation or assessment of clinical applications. This document can therefore be used as guidance for the specification of interaction models for reviewing and manipulating lists of medication items on a user interface.

Table 1 below highlights the revisions made to this document since the last release.

Previous Version	Previous Date	Changes Since Previous Version
1.0.0.0	06-Jul-2007	Content completely re-written.

Table 1: Updates to the Design Guidance – Medications Management – Medications Views Since the Last Version

1.1 Customer Need

An electronic system for managing a patient's medications must be able to support the complex needs of a wide range of healthcare professions and healthcare settings. A successful display solution must therefore balance those complex information needs with safety concerns, and ensure consistency across views and between systems.

Medications Incidents – For example, in the UK, the National Patient Safety Agency (NPSA) reports that the majority of medication incidents reported between January 2005 and June 2006 related to administration of medicines (59.3 per cent), followed by incidents related to preparation and dispensing (17.8 per cent), and prescribing (15.7 per cent). Their findings also state that the most common types of medication incidents reported to the NSPA were wrong dose, strength or frequency; omitted medicine and wrong medicine {R1}.

Existing Systems – In-patient care settings currently use multiple kinds of medications documents, both paper-based and electronic. Some of these design differences may well already impact patient safety as care professionals move between hospitals and are faced with new information groupings while working in stressful environments. Differences in display formats for medicines impact both the review and management of those medications, and will become a safety concern as electronic systems become more widely available in the next few years. The challenge for developers of electronic systems is particularly great in this area, as there are no universally-accepted, paper-based standards to refer to and computer screens are not capable of displaying the same density of information as a sheet of A4 paper (let alone a fold-out chart which may cover up to three sheets). This 'information density problem' is one of the primary reasons why designers of electronic systems resort to 'creative' display solutions and why these solutions inevitably diverge.

1.2 Scope

The guidance in this document defines a set of display styles for medications. Guidance for one of those display styles, the List View, is also defined in this document. Guidance for one of the other display styles, the Drug Chart view, is defined in the *Medications Drug Administration* document {R2}. Figure 1 illustrates the different areas covered by the Medications Views Framework.

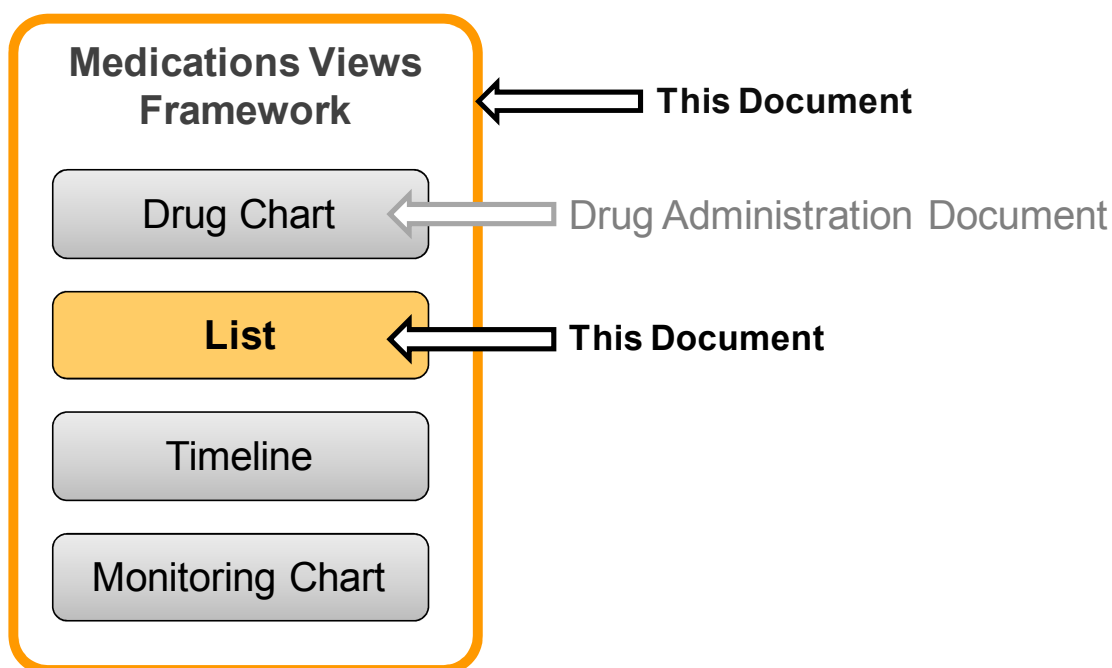


Figure 1: Medications Views Framework

1.2.1 In Scope

This guidance has been developed for, and is backed up by, research in short-term acute managed care settings. It is relevant to the presentation of and interaction with medications information for a single patient, specifically for supporting the review of a patient's medications.

1.2.2 Out of Scope

This guidance has been designed and assessed for a short-term acute managed care environment and not for any other area. It does not extend to intensive care, emergency departments, community or other contexts of care. It does not cover specialist clinical areas such as chemotherapy.

This document does not extend to include specific guidance that defines:

- What constitutes a unique medication item
- Which attributes each medication should have
- How those attributes can be displayed (including rules for truncation and wrapping)
- Which attributes can change without generating a new unique medication item for that patient

The handling of specialist and complex medications, regimens, devices and dressings is out of scope.

The guidance in this document does not preclude the pre-filtering of information displayed in a medications view via the application of a filter, either manually using controls outside of the medications framework or dynamically as part of a workflow that supports a task.

1.2.3 Dependencies and Assumptions

This guidance assumes that the clinical application will have a complete record of medications for each patient, and that the application can access and combine information about current and historic medications from many contexts of care.

Guidance defined in this document, in the *Drug Administration* document {R2} and in an ongoing project that aims to determine what constitutes a unique medication and how it should be displayed, is informed by *The Dictionary of Medicines and Devices* {R3}.

The guidance for the Level of Detail control in section 2.9.1 assumes that medications could and should be presented as levels of detail that are hierarchical, with predefined sets of attributes that are revealed as the level of detail is increased.

Important

The diagrams and mock screenshots in this document are used to show example designs that conform to the guidance. These illustrations are simplified in order to support understanding of the guidance points in each section respectively, with details included or excluded as relevant. These are purely illustrative and do not represent guidance on the specific style, colour schemes, or icons that should be used. Guidance for the design of specific icons will be produced in subsequent releases.

1.3 Key Principles

The following key principles inform the critical areas of guidance discussed within this document:

- Restrict significant medications-related actions to medications-specific views
- Provide a set of views of the patient's medications according to the most important and useful divisions for the context and task
- Present the information within each view in a display style most appropriate for the tasks associated with that view
- Support each view with appropriate controls chosen from a set of generic controls that are used across all views wherever relevant
- Provide the information required to make a high-level clinical assessment of the patient's medications
- Restrict the display of unnecessary information to reduce clutter and prioritise information most likely to require action
- Provide access in context to further details on demand
- Mitigate the potential for action to be taken without sufficient information by presenting carefully selected information and by providing explicit labels to clarify what information is displayed and the extent to which it is complete
- When dynamically presenting information (such as status information, error messages or warnings) display the information in context and facilitate action where necessary by providing clearly associated controls

2 RECOMMENDATIONS AND GUIDANCE

2.1 Medications Framework

The Medications Framework defines a minimum set of views for presenting medications information and provides guidance for presenting, navigating between and maintaining consistency for the common controls across those views, as illustrated in Figure 2.

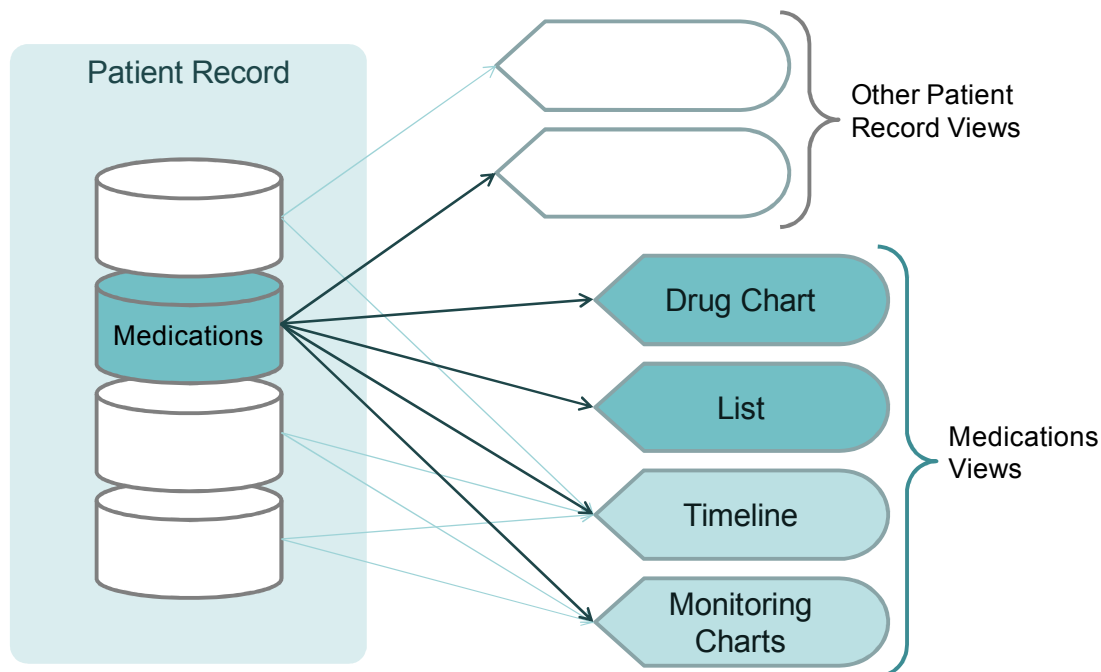


Figure 2: Using Medications Views to Divide and Present Medications Information

2.1.1 Medications Views

This section provides guidance to support the division and presentation of medications information into a set of views. Some of these views contain only medications information and some combine medications information with other information. Other patient record views may contain or reference medications. Figure 3 shows how medications views fit into the wider application.

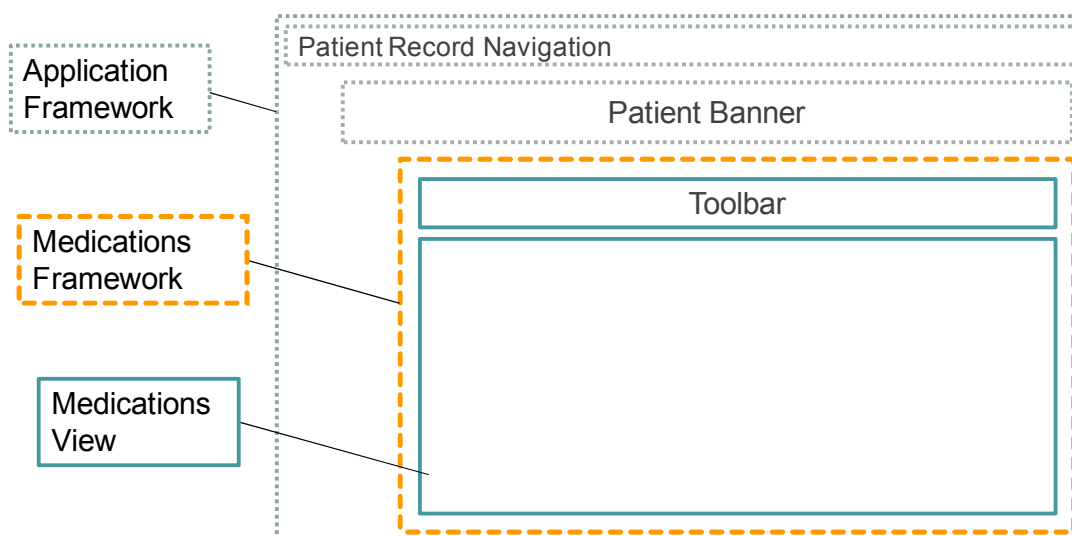


Figure 3: Medications Views in the Context of the Wider Application

2.1.1.1 Guidance

ID	Guideline	Status
MEDv-0001	Provide the following four views of medications as a minimum, in this order and with these labels: List, Timeline, Drug Chart, Monitoring Charts	Mandatory
MEDv-0002	Keep the number of medications views to a minimum	Mandatory
MEDv-0003	Provide a List view that displays medications primarily in text form with information and functions to support reviewing a patient's medications	Mandatory
MEDv-0004	Provide a Timeline view in which medications are represented by graphics plotted against a timeline	Mandatory
MEDv-0005	Provide a Drug Chart view with information and functions to support preparation and administration	Mandatory
MEDv-0006	Provide a Monitoring Charts view that supports the tracking of changes (such as varied doses) alongside related information (such as observations and test results)	Mandatory

Table 2: Guidance – Medication Views

2.1.1.2 Rationale

The set of medications views provides alternative ways of looking at medications that emphasise different qualities of the individual medications and of the whole list of medications for one patient.

The views are a complementary set that allow for the same medication or set of medications to be viewed from many different perspectives. Viewing medications from these different perspectives is maximised by providing a clear means of switching between them.

By not surfacing common options and therefore minimising the space needed for controls (in a toolbar area), the guidance strikes a balance between optimising for usability and maximising space for the presentation of medications.

Throughout five rounds of user feedback, no user ever felt that using different views to display the same medications in different ways was problematic.

The Drug Chart view and the idea of a Timeline view (not specified in this document) received strong support from users as alternative ways of displaying medication information.

No user feedback indicated any benefit of grouping the medications views, for example, into task-based groups such as into 'Review' and 'Administer'.

Exploratory designs in which views were divided by task were used to elicit user feedback. These designs grouped the four views into two groups, labelled 'Administer' which contained the Drug Chart and 'Review' which contained the List, Timeline and Monitoring Charts. Other exploratory designs used the label 'Overview' to refer to an equivalent of the List view. User feedback indicated that labels such as 'Review', 'Overview' and 'Administer' were problematic. The current labels, 'List', 'Timeline', 'Drug Chart' and 'Monitoring Charts' are less open to interpretation.

2.1.2 Common Controls

This section provides guidance for controls that are used in more than one medications view. Figure 4 shows three medications views that share the grouping control as well as the view selection control.

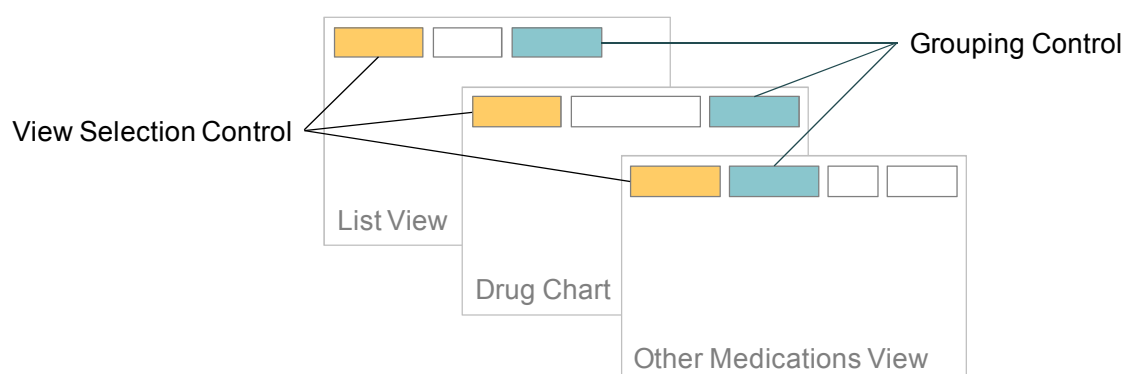


Figure 4: Common Controls for Medications Views

Figure 5 shows the view selection control and the set of controls for the List view.

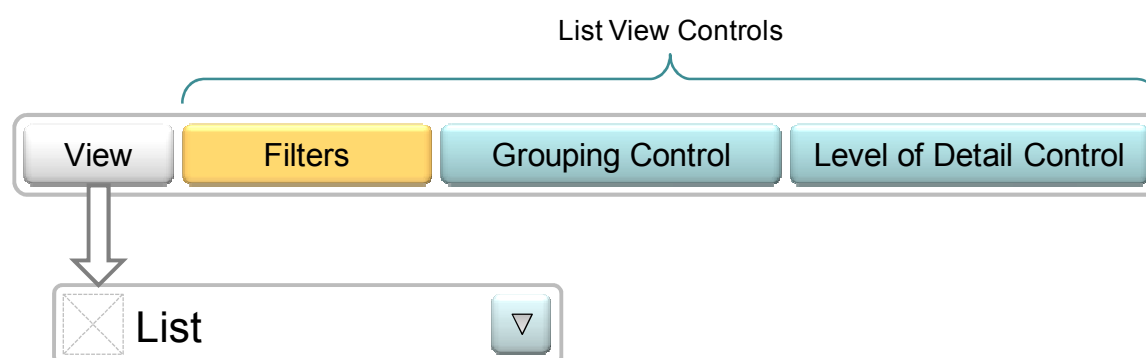


Figure 5: Medications Controls: View Selection

The view control supports switching between medications views. Figure 6 is one example of presenting the list of views when the control is activated.

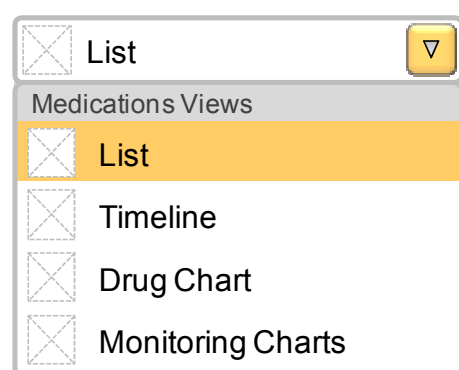


Figure 6: Example of a Combo Box Style Medications Views Control

2.1.2.1 Guidance

ID	Guideline	Status
MEDv-0007	Present the List view by default when accessing a medications specific section of the patient record	Mandatory
MEDv-0008	Present controls for medications views such that they detract as little screen space as possible from the display of medications	Recommended
MEDv-0009	Provide a standard control for switching between medications views that is persistently placed and consistent across all views	Mandatory
MEDv-0010	Support the selection of a medication view using a combo box control	Recommended
MEDv-0011	The control used to select the medication view is also used to indicate the view which is currently selected	Mandatory
MEDv-0012	Supplement the label for each view with an icon	Recommended
MEDv-0013	Support functionality available in multiple medication views (such as grouping and view selection), with the same type of control throughout	Mandatory
MEDv-0014	Maintain the same control settings for common controls when switching between medications views (not including sort orders)	Mandatory

Table 3: Guidance – Common Controls

2.1.2.2 Rationale

By not surfacing common options for the view selection control and therefore minimising the space it requires in the toolbar, the guidance strikes a balance between optimising for usability and maximising space for the presentation of medications.

Following one usability principle, the set of medications views would be presented such that common options are visible and can be immediately selected, thus enabling faster use and surfacing useful options for novice users. However, the compromise of not showing common options is justified when it is considered that the design would be a tool that is used frequently. The vast majority of use would not be 'first time use' and therefore a small learning curve is acceptable.

In addition, bulky controls leading to a lack of space for data display (in this case medications data) has been raised as a risk with clinical applications.

2.2 Medications List View

Figure 7 shows the basic areas of the List view.

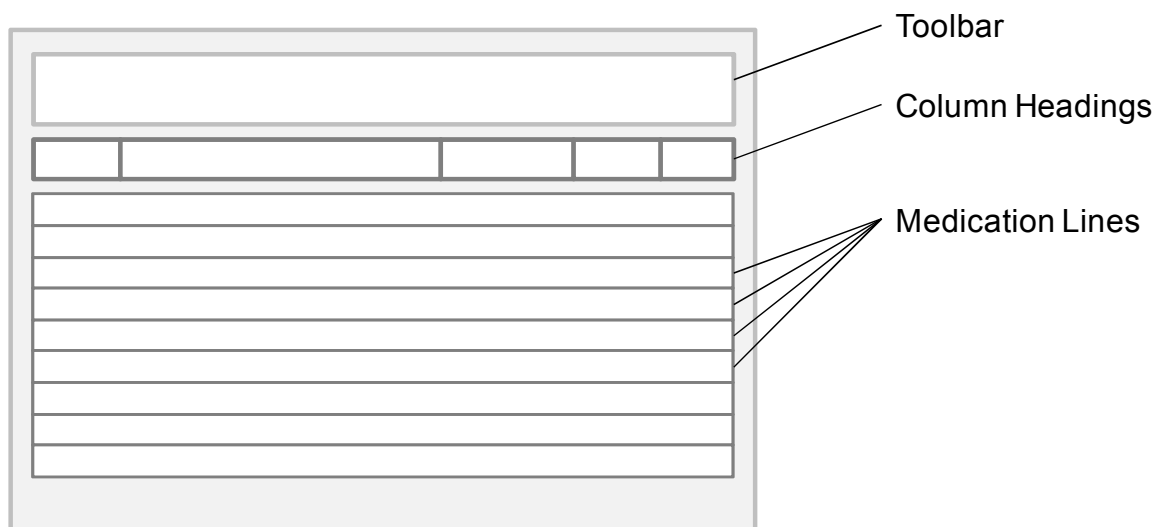


Figure 7: Medications List View Basic Structure

Figure 8 outlines the structure and layout of all the elements within the List view. This illustration is used in the following sections with shading to indicate the area to which the guidance in that section applies.

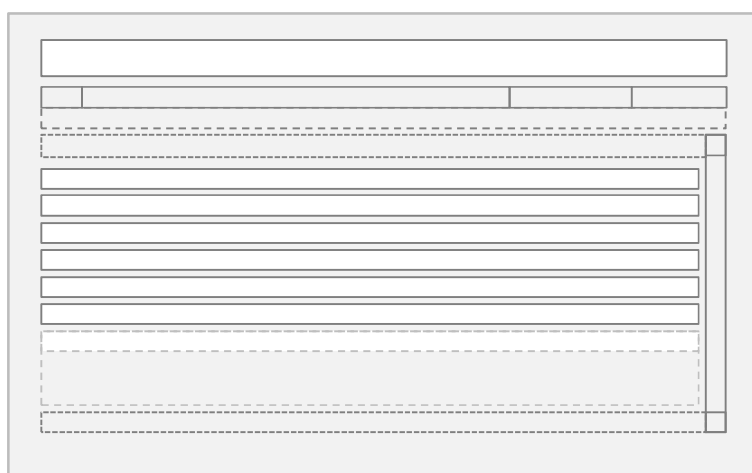


Figure 8: Medications Views Areas

2.2.1 Controls

This section provides guidance for the controls that are explicitly associated with the List view and that are displayed in a toolbar or similar area. Figure 9 shows the position of the control area (in blue) relative to the medications data area.



Figure 9: Medications Views Areas – Controls

Figure 10 shows the controls available in the List view.



Figure 10: Controls for the List View

2.2.1.1 Guidance Principles

- Use standard controls wherever possible to ensure compatibility and to reduce the potential for amendments in order to achieve the desired level of accessibility
- Minimise the need for controls that manipulate the lists

2.2.1.2 Guidance

ID	Guideline	Status
MEDv-0015	Present controls in the List view in this order: View Selection, Filtering, Grouping, Level of Detail Selection	Recommended
MEDv-0016	In the List view, provide buttons for filtering to display Current or Past medications respectively	Mandatory
MEDv-0017	In the List view, provide a control for filtering past medications	Mandatory
MEDv-0018	In the List view, provide a control for grouping items in the list	Mandatory
MEDv-0019	In the List view, provide a Level of Detail control for changing the number of attributes visible for each medication	Mandatory

Table 4: Guidance – Controls

2.2.1.3 Rationale

The medications list must be flexible enough to emphasise different properties of medications in the list with a small number of controls that are straightforward to understand and interact with. The List view employs a combination of filtering, grouping and sorting to provide complex end results that are simple to achieve using familiar controls.

2.2.2 Structure and Layout

This section provides guidance for the structure and layout for presenting medications within the List view, including the layout and visual treatment of the list and list items. Figure 11 shows the position of the medications data area (in blue) in the List view.

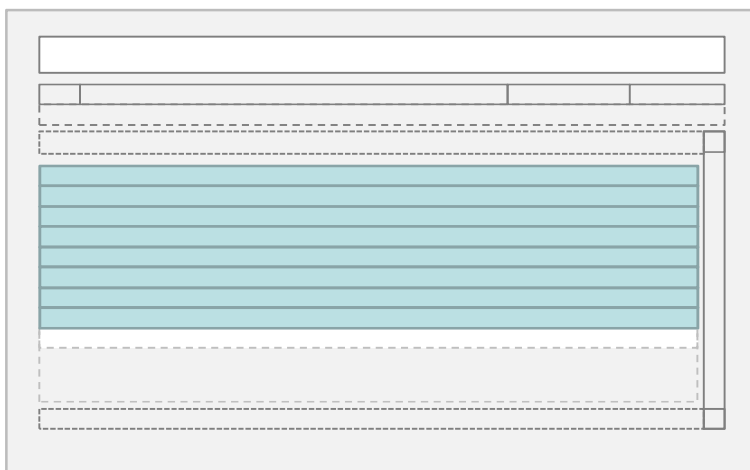


Figure 11: Medications Views Areas – Structure and Layout

Figure 12 is an example of the table-like structure used to display medications. Guidance for the specific details for a medication are being defined as part of an ongoing project that aims to determine what constitutes a unique medication and how it should be displayed.

Toolbar


Start Date		Drug Details	Reason	Status	End Date
Start Date	drug name and drug details		Reason	Status	Date
Start Date	drug name and drug details		Reason	Status	Date
Start Date	drug name and drug details		Reason	Status	Date
Start Date	drug name and drug details		Reason	Status	Date
Start Date	drug name and drug details		Reason	Status	Date
Start Date	drug name and drug details		Reason	Status	Date
Start Date	drug name and drug details		Reason	Status	Date

Figure 12: Structure and Layout of the List View

In the List view, medications are presented in a flexible table-like structure. The attributes displayed for each medication are dependent on the Level of Detail selected. Specific attributes (and thus columns and column headings) are defined in section 2.9.1.

Figure 13 shows an example of formatting for the medications List view. The formatting is used to draw attention to the suspended medication and to differentiate medications with a status of 'Not Started' from those with a status of 'Started'.

Start Date	Drug Details	Reason	Status	Date
Start Date	Drug Details	Reason	Not Started	Date
Start Date	☒ Drug Details	Reason	Not Started	Date
Start Date	Drug Details ☒	Reason	Not Started	Date
Start Date	Drug Details	Reason	Suspended	Date
Start Date	Drug Details	Reason	Started	Date
Start Date	Drug Details	Reason	Started	Date
Start Date	Drug Details ☒ ☒	Reason	Started	Date
Start Date	Drug Details	Reason	Started	Date

Figure 13: Example Formatting for Medications in the List View

2.2.2.1 Guidance

ID	Guideline	Status
MEDv-0020	Present medications as lines of text in a table-like format	Mandatory
MEDv-0021	Avoid the use of strong grids and strong vertical lines. (Use subtle methods of distinguishing between rows in the list.)	Mandatory
MEDv-0022	Use subtle alternate shading of medications in the list	Recommended
MEDv-0023	Support the display of icons following the text of the Drug Details column in the List view	Mandatory
MEDv-0024	Use visual design to draw attention to suspended medications	Mandatory
MEDv-0025	Use visual design to distinguish current and past medications in the List view	Mandatory
MEDv-0026	Use visual design to distinguish medications with a different status (and thus between current and past)	Recommended

Table 5: Guidance – Structure and Layout

2.2.2.2 Rationale

The guidance aims to support the presentation of medications in a format that supports both comparing across the lines (down a single column) and reading within the lines (across a single row). It does this without restricting the view to a pure table-like format that depends on medications sharing exactly the same set of attributes and thus requires more space to lay them out.

Several rounds of user feedback indicated that a general table-like layout was familiar to clinical users for medications data. The various advantages and disadvantages with a table-like layout identified during user feedback, such as ease of reading along a line, ease of identifying key attributes and compare across them, ease of sorting, and so on, have been incorporated or mitigated in the current designs (which are not strict tables).

Guidance around the promotion of reading along a line in order to clearly associate medication attributes together and aid readability (via the removal of vertical lines), while retaining table-like column alignment, is supported by several rounds of user feedback.

Visual design is recommended to differentiate between medications of different statuses to support quick recognition of the composition of a list, and to enhance sense of place when switching between a view of 'current' medications and a view of 'past' medications. This extra distinction of

different statuses, (especially suspended medication within the list of 'Current') is supported by user feedback.

The use of alternate shading is recommended to mitigate a patient safety hazard relating to reading across the row clearly and easily. It is especially designed to support association of information on the left, such as Start Date, and information on the right, such as Status. User feedback supported the alternate row shading design pattern to enhance line readability. Users commented that it would likely reduce line misreading (via skipping midway in a line) especially when tired.

2.3 Displaying a Medication Line

Each medication line in the List view is presented as a set of attributes that are displayed within columns. This section provides guidance for the structure and layout of attributes within each medication line.

Guidance for the specific details for (attributes of) a medication are being defined as part of an ongoing project that aims to determine what constitutes a unique medication and how it should be displayed. This work will define which attributes are displayed in the Drug Details column.

2.3.1 Structure

This section provides guidance that describes how to structure the information for the currently visible level of detail. The columns that are displayed depend on which Level of Detail is currently selected, such that higher levels of detail may introduce further columns. See section 2.9.2 for details on the Level of Detail control.

The guidance in this section is heavily dependent on the ongoing project to define guidance for what constitutes a unique medication. It restricts this document in the following way:

- Guidance is provided for the labelling of only some of the column headings
- The Date column that is displayed to the right of the status column displays a date that is associated with the Status. This date is not fully defined here and can only be described as the date relating to the status such that when the status is 'started' the date is the start date
- For the purposes of this document, start date is defined as the intended date of the first administration for medications in short-term acute care settings

2.3.1.1 Guidance

ID	Guideline	Status
MEDv-0027	Allow columns in the List view to contain more than one attribute for a single medication	Mandatory
MEDv-0028	In the List view, the following columns (when visible) should be displayed in this order: Start Date, Drug Details, Reason, Status, Status Date	Mandatory
MEDv-0029	In the List view, when a date column is displayed that contains end or review dates, display this column to the right of the status column	Mandatory
MEDv-0030	In the List view, start each medication line with the Start Date	Mandatory
MEDv-0031	Right align the Start Date and Status in the List view	Mandatory
MEDv-0032	Left align the Drug Details, Reason and End or Review Date in the List view of medications	Mandatory
MEDv-0033	When a medication in the List view has an associated decision support alert, display an alert icon before the drug name such that the drug name is moved to the right	Mandatory

Table 6: Guidance – Structure

2.3.1.2 Rationale

The guidance on allowing multiple attributes in table-like columns is informed by user feedback on the disadvantages of strict tables when representing different medications within the same list.

The drug details of a medication are preceded by a decision support alert icon, such that the drug name is offset to the right. This approach makes use of the interruption of the natural reading flow down the drug details column in order to draw attention to those medications with alerts.

User feedback on the order of attributes in the line, found a minority of users in two rounds of feedback, raised a concern about having to read along the line from the start date to end date in order to work out the duration or intended duration. However the wide separation of the two dates is considered to be a safety mitigation to prevent accidental confusion of the two dates. In addition, the guidance on visual design of the lines is intended to aid ease of reading along the medication lines.

Previous user feedback had found that clustering multiple dates in close proximity per medication line might cause some of those dates to be overlooked. Similarly, labelling every date in a line to distinguish the dates was found to be cluttering.

The Status Date is displayed to the right of the Status to encourage association, and to support a natural reading order. For example, 'Started 12-Mar-2007'.

2.3.2 Layout

This section provides guidance for the layout of the information within in each medication line.

Figure 14 is an example of a layout that illustrates the way that text wraps in some columns and is truncated in others.



Date	 drug name and drug details	Reason	Status	Date
Date	drug name and drug details	Long reason, wrapped...	Status	Date
Date	drug name and drug details	Reason	Status	Date
Date	 drug name and drug details that are long enough to wrap onto a new line	Reason	Status	Date
Date	drug name and drug details	Reason	Status	Date

Figure 14: Layout Examples for a Medication Line

When the List view is presented with limited horizontal space or when the Drug Details column requires more width, the status and associated date can be presented within a single column. This is illustrated in Figure 15.



Date	 drug name and drug details	Reason	Status Date
Date	drug name and drug details	Long reason...	Status Date
Date	 drug name and drug details that are long enough to wrap onto a new line	Reason	Status Date

Figure 15: Medication Lines in Restricted Horizontal Space

2.3.2.1 Guidance

ID	Guideline	Status
MEDv-0034	Allow the contents of the Drug Details and Reason columns in the List view to wrap where necessary	Mandatory
MEDv-0035	Where a Reason field in the List view has been truncated, display an ellipsis	Mandatory

ID	Guideline	Status
MEDv-0036	Allow the end or review date to be right aligned and displayed below the status where horizontal space is restricted in the List view, or where the Drug Details column requires more width	Mandatory
MEDv-0037	Do not wrap the contents of the Reason field beyond two lines when this would increase the height of the medication line, allow the contents of the Reason field to be truncated after it has wrapped to a new line	Mandatory

Table 7: Guidance – Layout

2.3.2.2 Rationale

The layout rules support the prioritisation of important information, such as start date and drug details, and ensure that the display of drug details is not compromised.

2.3.3 Text Formatting

This section provides guidance for the text formatting of the information within each medication line. Figure 16 shows an example of how this could look.

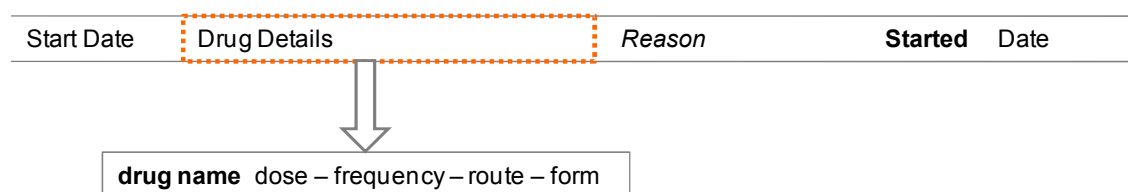


Figure 16: Example of Attributes Combined in the Drug Details Column

2.3.3.1 Guidance

ID	Guideline	Status
MEDv-0038	Use formatting to distinguish the Reason from the rest of the medication line in the medications List view	Mandatory
MEDv-0039	Display the drug name in bold in the Drug Details column of the medications List view	Mandatory
MEDv-0040	Display two spaces after a drug name in the Drug Details column of the medications List view	Mandatory
MEDv-0041	Use a hyphen with surrounding spaces to separate attributes (apart from drug name) in the Drug Details column of the medications List view	Mandatory
MEDv-0042	In the medications List view, display the status of each medication in bold	Mandatory

Table 8: Guidance – Text Formatting

2.3.3.2 Rationale

This guidance is designed to support readability of a medication line with particular attention to preventing misinterpretation of critical information, such as drug name and dose.

2.4 Look-Ahead Scroll Bar

The Look-Ahead Scroll Bar provides visibility of medications that are outside of the currently visible area of the list. This section provides guidance on the structure and layout of the Look-Ahead Scroll Bar and associated notifications. It also defines guidance for how to populate the look-ahead notifications, and which dynamic behaviours and interactions should be supported.



Figure 17: Medications Views Areas – The Look-Ahead Scroll Bar

2.4.1 Structure and Layout

The Look-Ahead Scroll Bar supplements a standard scroll bar with notifications. These are illustrated in Figure 18. This section provides guidance for the presentation of these notifications.

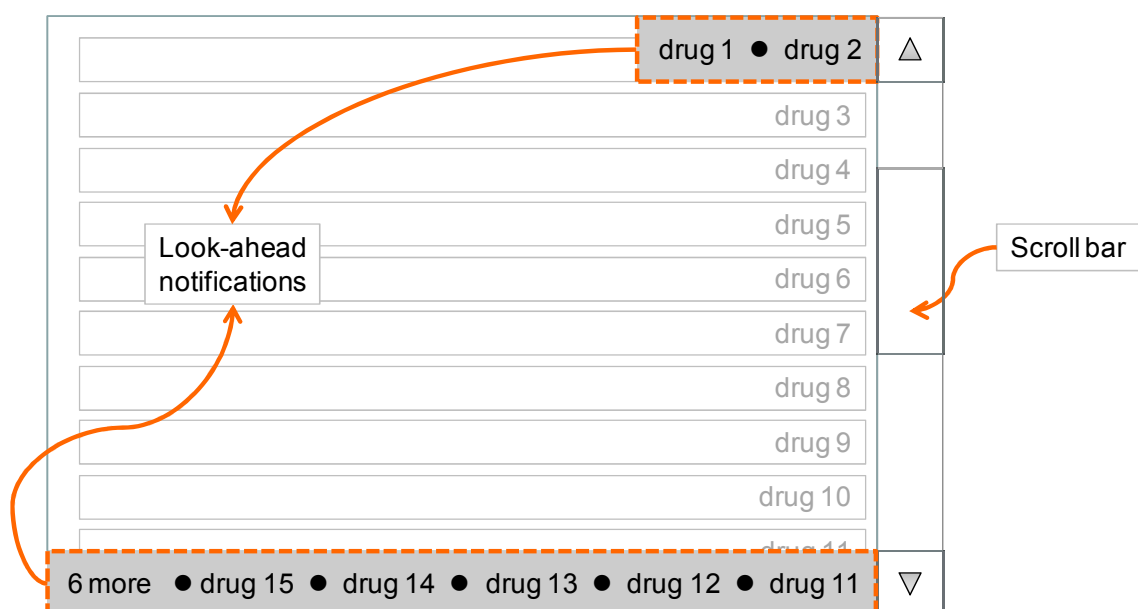


Figure 18: Look-Ahead Notifications

2.4.1.1 Guidance

ID	Guideline	Status
MEDv-0043	The look-ahead notification should be clearly joined to the 'up' and 'down' arrow controls of the scroll bar	Mandatory
MEDv-0044	Restrict the look-ahead notifications to a single line each	Mandatory
MEDv-0045	Do not place controls or other notifications such that they separate the look-ahead notification from the medications in the List view	Mandatory
MEDv-0046	Allow the Look-Ahead Scroll Bar notification to occlude medications in the list	Mandatory

Table 9: Guidance – Look-Ahead Scroll Bar

2.4.1.2 Rationale

The Look-Ahead Scroll Bar mitigates the risk that there are medications, in the full list of medications for one patient, that are not currently visible and thus could be overlooked. The Look-Ahead Scroll Bar is appropriate for use in any view where an understanding of the extent and contents of a full list are a safety concern.

User feedback with a small number of clinicians showed strong support for the look-ahead notifications.

An early prototype of the Look-Ahead Scroll Bar showed that it is necessary to allow the look-ahead notifications to occlude medications in the list. This was because moving medications up or down out of the visible area so that they did not get occluded, left a gap at the bottom or top of the list which acted as a 'scroll-stopper' implying the list did not continue either up or downwards.

2.4.2 Notification Contents

This section provides guidance for the information that is displayed in the look-ahead notification.

The contents of a Look-Ahead Scroll Bar notification are different when the time filter is set to show current medications, than when the time filter is set to show past medications. Figure 19 illustrates these differences.

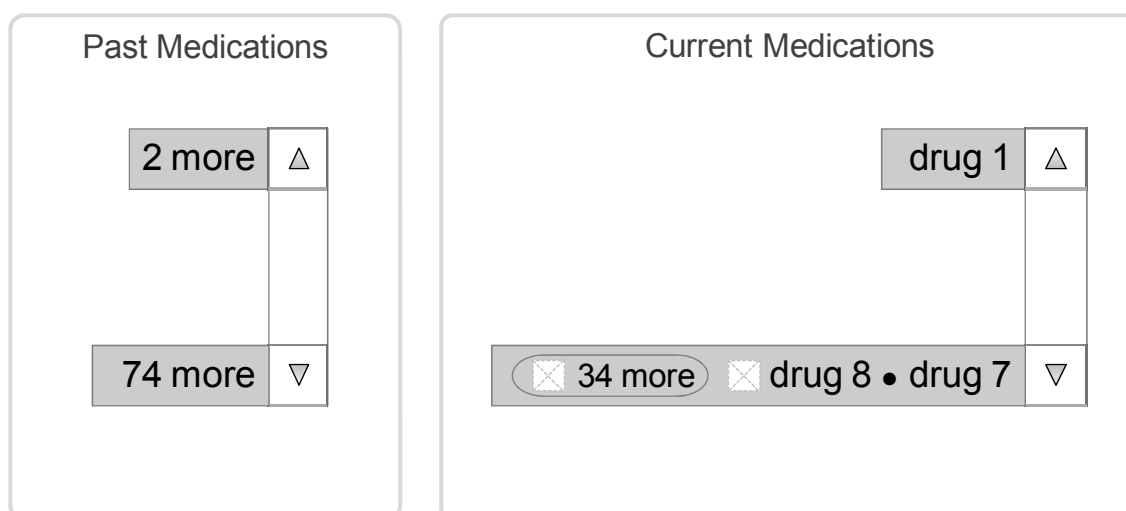


Figure 19: Examples of Look-Ahead Scroll Bar Notifications for Current and Past Respectively

The look-ahead notifications dynamically display the names of medications that are above and just below the visible section of the list. The order in which drugs appear in the look-ahead notification is illustrated in Figure 20 and also in Figure 18.

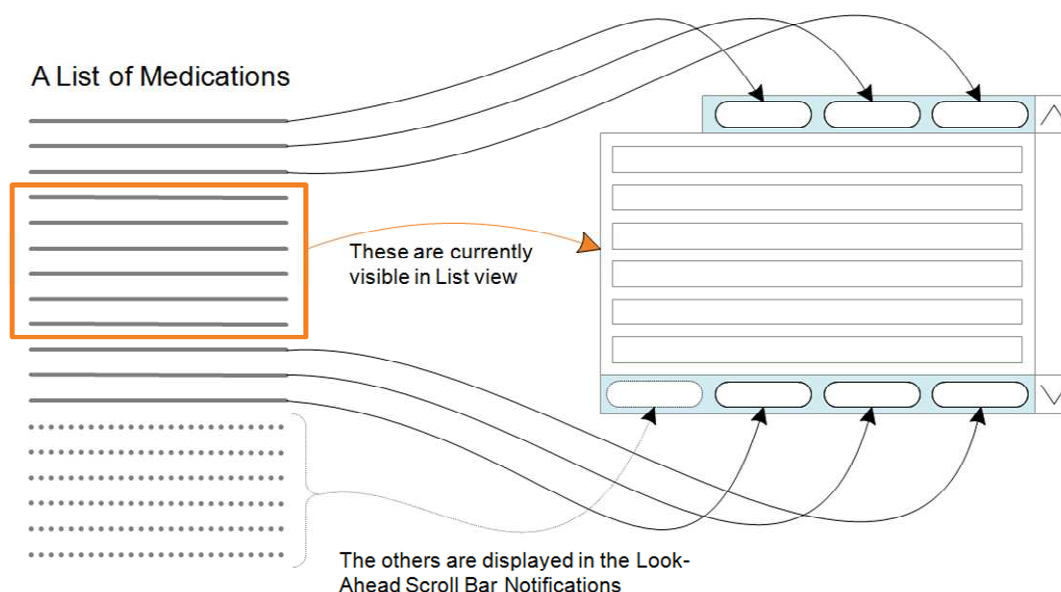


Figure 20: Diagram to Illustrate the Order of Medications in the Look-Ahead Notifications

The notifications provide:

- A clear signal that there are more medications to be displayed
- An indication of the number of medications above and below the visible section of the list
- The names of the medications that are just beyond the visible section
- Alert icons to draw attention to medications that may require particular attention

2.4.2.1 Guidance

ID	Guideline	Status
MEDv-0047	Medications that are occluded by the look-ahead notification should be included in the look-ahead notification	Mandatory
MEDv-0048	The look-ahead notification is populated from right to left such that the next drug in the list appears closest to the scroll bar	Mandatory
MEDv-0049	The contents of the look-ahead notification should follow the current order of the list	Mandatory
MEDv-0050	Where exceptionally long drug names require more space than is available in a look-ahead notification, display a count (as for past medications) instead	Mandatory
MEDv-0051	Do not truncate or abbreviate drug names in the look-ahead scroll bar notification	Mandatory
MEDv-0052	When there are more items than can be displayed in the look-ahead notification for current medications, display as many as possible and end the list with a count of the remaining items that could not be displayed	Mandatory
MEDv-0053	When a count is displayed in a look-ahead notification and one or more of the medications included in that count have decision support alerts, display a decision support alert icon next to the count	Mandatory
MEDv-0054	When displaying past medications only, display counts in the look-ahead notification and not drug names	Mandatory

ID	Guideline	Status
MEDv-0055	When displaying current medications only, show drug names and decision support alert icons in the look-ahead notification	Mandatory
MEDv-0056	When drug names are displayed in a look-ahead notification, separate them with spaces and a clear delimiter	Mandatory
MEDv-0057	When displaying current medications, do not include (or count) medications that are displayed within a recent past notification in the Look-Ahead Scroll Bar notifications	Mandatory

Table 10: Guidance – Notification Controls

2.4.2.2 Rationale

The presentation of a Look-Ahead Scroll Bar notification reduces the amount of space available to display the list of medications and for this reason it is restricted to a single line.

Displaying a Look-Ahead Scroll Bar with simple counts of medications already begins to mitigate the risk that the scroll bar alone is not a strong enough signal to indicate that there are more medications in the list than are currently visible. By supplementing this with drug names, the notification supports more efficient navigation and encourages access to the remainder of the list.

By presenting alert icons in the Look-Ahead Scroll Bar notification, an alert icon is always visible whenever there are any medications in the list with alerts.

2.4.3 Interactions

This section provides guidance that describes: how and when look-ahead notifications are presented, how they dynamically update and what interactions are supported.

2.4.3.1 Guidance

ID	Guideline	Status
MEDv-0058	Update the look-ahead notifications dynamically in response to scrolling	Mandatory
MEDv-0059	The look-ahead notification changes width dynamically to accommodate its contents up to the available width	Mandatory
MEDv-0060	Support clicking on a drug name in the look-ahead notification to bring that medication to the top of the view	Mandatory
MEDv-0061	Support clicking on a count within the look-ahead notification to bring the next medication in the list referred to by that count to the top of the list	Mandatory

Table 11: Guidance – Interactions

2.4.3.2 Rationale

The Look-Ahead Scroll Bar notifications are extensions of a standard scroll bar and are thus necessarily as dynamic as the scroll bar itself.

2.5 Filtering

The filtering controls provide access to views that use simple pre-defined divisions of medications into 'current' and 'past' and that allow further filtering of past medications. The terms 'current' and 'past' refer to sets of medications with certain statuses as defined in Table 12. These definitions are solely for the purposes of defining the inclusion criteria for the 'current' and 'past' time filters and are not intended to provide definitions for use in other contexts.

Status	Filter	Description
Started	Current	Medications that have started (have an administration event recorded) and have further scheduled administrations
Not Started	Current	Medications that have administrations scheduled and a start date in the future
Suspended	Current	Medications that are marked as not to be administered but which are intended to be resumed at a later date
Completed	Past	Medications that have administration events recorded according to their schedule (within tolerances) and have an end date in the past
Discontinued	Past	Medications that were stopped on a date that precedes one or more of the scheduled administrations

Table 12: Definitions of Current and Past for the Purposes of Filtering

2.5.1 Controls for Current and Past

This section provides guidance for the controls to support switching between a list of current medications and a list of past medications. Figure 21 shows where these controls are positioned.

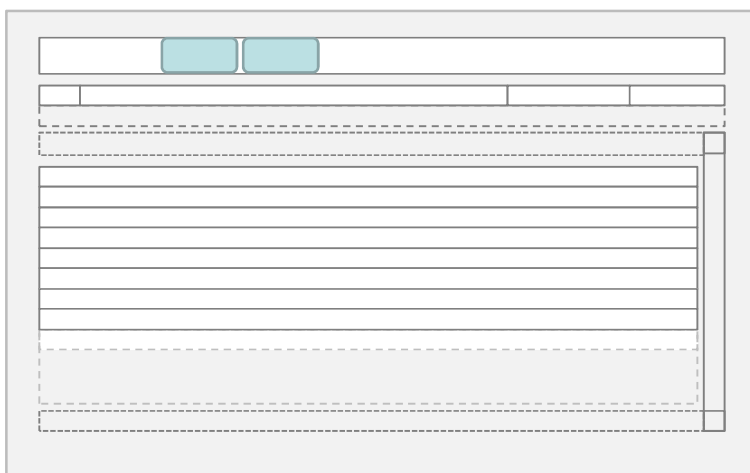


Figure 21: Medications Views Areas – Current and Past Controls

Figure 22 shows a notional toolbar with the View control that is present for each of the medications views (List, Timeline, Drug Chart and Monitoring Charts) and indicates the names of the three controls for the List view. The controls for displaying current and past medications respectively, and for further filtering past medications, are referred to in this figure as “Filters”.

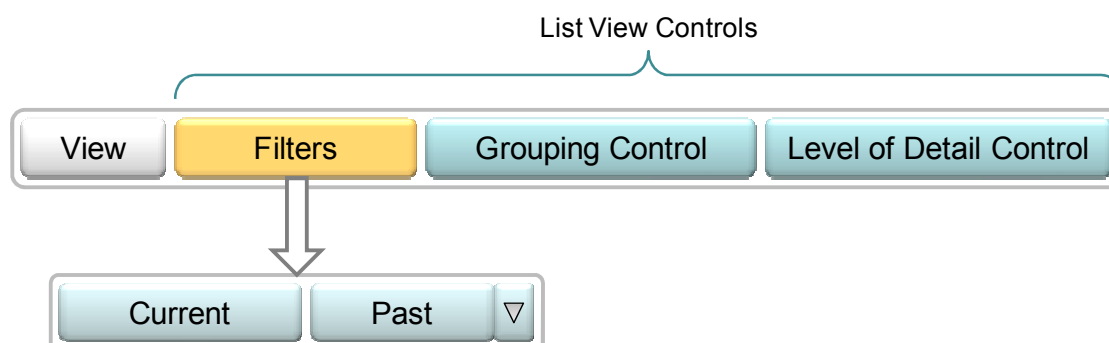


Figure 22: List View Controls – Time Filters

2.5.1.1 Guidance

ID	Guideline	Status
MEDv-0062	Present the List view with 'Current' selected by default	Mandatory
MEDv-0063	Provide buttons for displaying current and past medications respectively in the medications List view and label the buttons 'Current' and 'Past'	Mandatory
MEDv-0064	Use the 'Current' and 'Past' buttons to indicate which is currently selected	Mandatory
MEDv-0065	Do not allow 'Current' and 'Past' buttons to be simultaneously selected	Mandatory
MEDv-0066	Supplement the 'Past' button in the medications List view with a drop-down control for displaying, selecting and applying a filter on the past medications view	Mandatory
MEDv-0067	Include an option for removing a filter in the filter control in the medications List view and disable the option when there is no filter applied	Mandatory
MEDv-0068	If a filter is applied to the medications list from elsewhere in the application, display a notification below the column headings and above the medications list and include a control for removing the filter within that notification	Mandatory

Table 13: Guidance – Controls for Current and Past

2.5.1.2 Rationale

Expert reviews, comparative analysis of alternative designs, user feedback sessions and patient safety hazard assessments have provided extensive input to the guidance for time filtering. The following conclusions have informed this guidance:

- Separate Current and Past views match user mental models and support the majority of time filtering needs. Detailed time filtering was considered by users to be an edge case, and so can be demoted in the interface. A separate page for 'current' medication provides the required unambiguous indication of what is currently prescribed
- Separate Current and Past views also support the more common task of reviewing current medications without past medications appearing at the same time. This is especially pertinent when grouping is applied
- More advanced filters support effective display of past medications especially where the list of past medications is very long
- A mixture of current and past medications in a single list creates issues relating to: sorting, grouping, the display of common attributes and easy distinction of medications with different states. These issues are considered to outweigh the benefits of a mixed list
- Risks associated with presenting a list from which some medications are hidden can be mitigated in certain circumstances providing the inclusion criteria are clearly communicated
- Separation of current and past medications allows different default sort orders (such as reverse chronologically by start date for current and by end date for past) to be applied to each. User feedback suggested that current and past do have different optimum sort orders 'Current' and 'Past' as status filters and calls to action were shown to be clear and feedback supported the guidance that the indicators/calls to action should both be displayed all the time

2.5.2 Filtering Past Medications

This section provides guidance on filtering the list of past medications. Figure 23 shows the position of a filter notification that is displayed at the top of the list of medications in the List view.



Figure 23: Medications Views Areas – Filter Notification

Figure 24 shows an example of a filter notification.

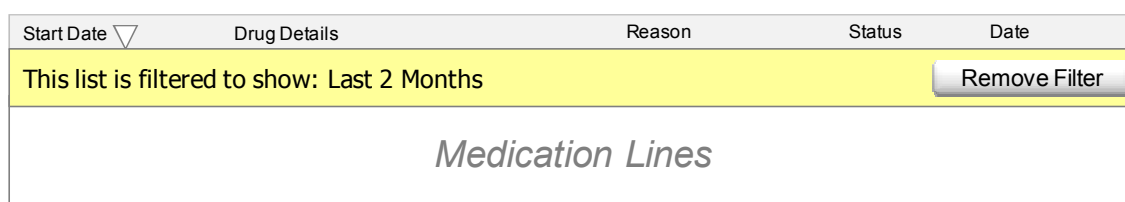


Figure 24: Example of a Filtered List Notification

2.5.2.1 Guidance

ID	Guideline	Status
MEDv-0069	When a filter is applied to past medications in List view, the Past button should indicate that it is currently selected	Mandatory
MEDv-0070	When a filter is applied to past medications in the List view, display a filter notification at the top of the list, below the column headings and above the scroll bar (thus 'pushing' the list of medications down a line)	Mandatory
MEDv-0071	Display a description of the current filter within the filter notification in the medications list	Mandatory
MEDv-0072	Include a count of the number of medications displayed and a count of the total (unfiltered) number of past medications in a filter notification	Mandatory
MEDv-0073	Provide a control for removing the filter within the filter notification in the medication list	Mandatory

Table 14: Guidance – Filtering Past Medications

2.6 Recent Past Medications

2.6.1 Displaying a Recent Past Notification

A recent past notification in a view of current medications, draws attention to medications that have completed or been discontinued recently (within a specified time interval such as 48 hours). This section provides guidance for the display of a recent past notification. Figure 25 shows the position where recent past notifications are displayed.



Figure 25: Medications Views Areas – Recent Past Notification

Figure 26 illustrates revealing and hiding the medications referred to in the recent past notification. In this figure, a shaded area represents the recent past notification (see Figure 27) within which there is a button for displaying the medications that the notification refers to. When the recently past medications are displayed, they are presented within the recent past notification area.

1. A Recent Past Notification



2. Recent Past Medications Revealed

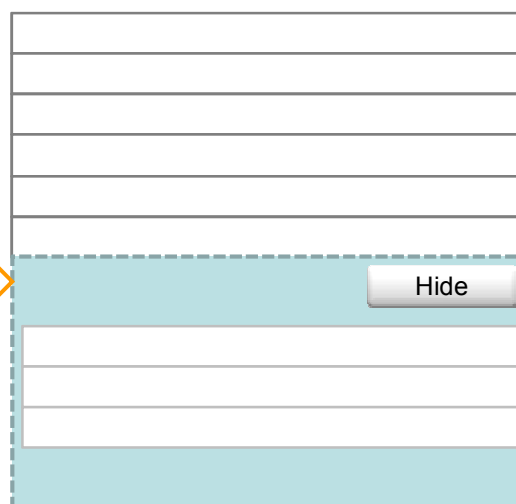


Figure 26: Recent Past Notification Show and Hide Action

Figure 27 is an example of the text that may appear in a recent past notification.

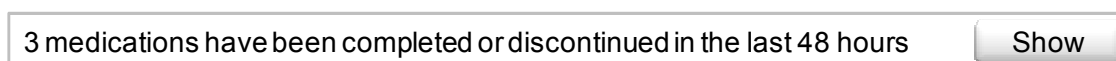


Figure 27: An Example of a Recent Past Notification

2.6.1.1 Guidance

ID	Guideline	Status
MEDv-0074	Display a notification for recently past medications that have been completed or discontinued within a specified time interval from the current time	Mandatory
MEDv-0075	Clearly display the time interval within the recent past notification	Mandatory
MEDv-0076	When displaying recent past medications, ensure that they are clearly associated with the control from which they are opened and distinguished from other medications in the list	Mandatory
MEDv-0077	Display a count of the number of recently past medications within the recent past notification in the medication list	Mandatory
MEDv-0078	Within a recent past notification in the medications list, provide a button labelled 'Show' for revealing the medications to which it refers	Mandatory
MEDv-0079	When the 'Show' button in the recent past notification has been selected to display the medications to which it refers, change the 'Show' button to 'Hide'	Mandatory
MEDv-0080	When a recent past notification is displaying a list of medications, support selection of the 'Hide' button to return to the default recent past notification and change the 'Hide' button back to 'Show'	Mandatory
MEDv-0081	Present medications within a recent past notification as read-only	Mandatory
MEDv-0082	Display recent past notifications at the bottom of the medications list when ordered reverse chronologically by start date and at the top when that order is reversed	Mandatory

Table 15: Guidance – Displaying a Recent Past Notification

2.6.1.2 Rationale

Since medications are selected for presentation in the current view according to their status, there is a very clear cut off point at which a medication becomes past and is thus no longer visible in the current medications list. This could mean that a medication that was completed five minutes ago is no longer visible in the list of current medications. The guidance provides a recent past notification to mitigate the risk that recent events are missed. It supports the configuration of a time interval that is relevant for the context of use.

This is a pragmatic way of alerting a user to medications which might still be pharmacologically active within the patient's body, even though they are no longer prescribed to the patient. A genuine measure of the pharmacological activity of a medication is considered to be too difficult to accurately accomplish without significant data input to the system (such as renal function).

Patient safety assessments identified a hazard associated with the recent past time interval. Allowing the time interval to be configurable to an interval that is relevant to the context of use and ensuring that the time interval is clearly displayed mitigate this risk.

Two rounds of user feedback found strong support for the idea of 'Recent Past' notification associated with current medications.

2.7 Grouping

This section provides guidance for applying grouping to the list of medications and for the display of the grouped list. Figure 28 shows where the grouped lists are displayed and Figure 29 illustrates the list view controls.

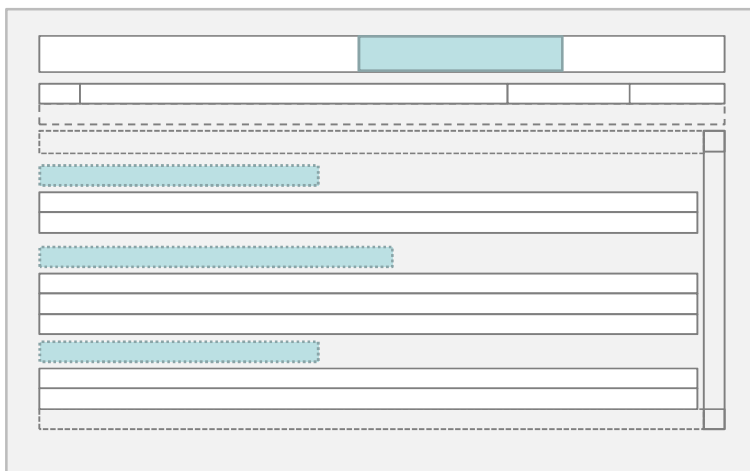


Figure 28: Medications Views Areas – Grouping

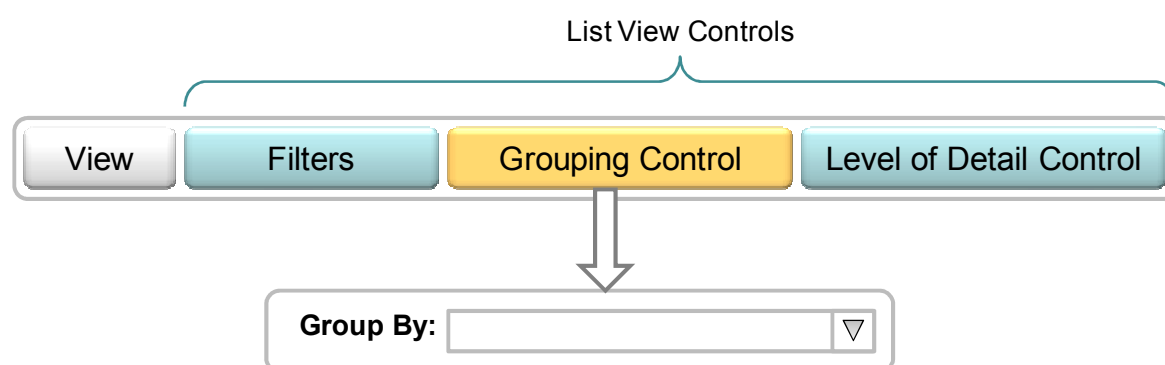


Figure 29: List View Controls – Group By

2.7.1 Grouping a List of Medications

This section provides guidance for arranging the list of medications into groups according to common attributes. Potential groupings to consider include:

- Drug name
- Medication Type: Regular, One-off, As Required, Continuous
- Type (as above) and Route
- Prescriber
- Reason for prescribing
- Encounter (or episode)
- Status (Not Started, Started, Suspended, Completed, Discontinued)
- Medications with decision support alerts
- Frequency and Route

Figure 30 illustrates a list with grouping applied and shows the use of group headings that include a count of the number of medications in that group and expand/collapse controls.




 Group X (4)	Medication A
	Medication B
	Medication C
	Medication D
 Group Y (3)	Medication E
	Medication F
	Medication G
 Group Z (2)	Medication H
	Medication I

Figure 30: Example of Grouping Applied to a List

2.7.1.1 Guidance

ID	Guideline	Status
MEDv-0083	Present the List view with no grouping active by default	Mandatory
MEDv-0084	Provide a standard combo box control for displaying, selecting and applying a grouping to the medications list	Mandatory
MEDv-0085	Label the grouping control 'Group By'	Mandatory
MEDv-0086	Display clear and prominent headings for each group category	Mandatory
MEDv-0087	Retain the column sort order in the medications list when grouping is applied	Mandatory
MEDv-0088	Allow other controls (time filters, level of detail) in the medications list to be used without affecting the applied grouping	Mandatory
MEDv-0089	Supplement the group headings with a number representing a count of medications within that group	Mandatory
MEDv-0090	Do not display group headings for empty groups	Mandatory
MEDv-0091	Provide 'null' groups where necessary to support the display of medications that do not have a value for the attribute being used to group the medications	Mandatory
MEDv-0092	Provide controls for expanding and collapsing individual groups. Place these controls at the beginning of the group heading	Mandatory
MEDv-0093	Support auto-collapsing of groups for some grouping schemes when the number of groups is high	Recommended

Table 16: Guidance – Grouping a List of Medications

2.7.1.2 *Rationale*

Grouping and filtering were evaluated as solutions for breaking lists of medications into meaningful sets and for displaying medications with particular attributes in common. The decision to use grouping is based primarily on the perceived risks associated with presenting a filtered view.

The following assumptions are made:

- It is more important to mitigate risks associated with hiding information from view by applying a filter than risks associated with scrolling long lists once medications have been grouped. This risk is also mitigated by the Look-Ahead Scroll Bar defined in section 2.4
- Some attributes will create a large number of sets (for example, if there are a great number of prescribers in a list of medications) and these are better handled by grouping within a list rather than providing a large number of filters that present a series of lists
- The advantages of filtering for handling mutually exclusive sets and mixed topology sets are outweighed by the risks associated with hiding information by presenting a filtered list
- There is more space for descriptive text labels for group headings than for filters if filters are presented as tabs. This assumes that sets of filters are expected to be always visible and thus displayed outside of the list whilst group headings can be presented within the list and revealed by scrolling
- The need for visibility of the full set (of groups or filters) is less important than being able to support descriptive labels for sets and presenting sets in the context of the whole list rather than using a filter to hide some medications from view

Grouping and filtering were explored at some length over successive user feedback sessions, with requirements, advantages and disadvantages identified. The ability to reorganise the list of medication into different sets in some way was consistently supported.

Successive rounds of user feedback also found that Secondary Care users were very familiar with having medication grouped into the kinds of categories on their paper drug charts. Though these vary, common categories are by 'type', for example, regular, one-off, as required and infusions. Users in all rounds confirmed that they would like to be able to organise medication by 'type'.

However, user feedback also showed that the majority of users in several feedback rounds would prefer the medications to NOT be grouped by type by default, with the caveat that certain key differences between medications should clearly be indicated (for example, whether a medication was 'as required').

The 'Group By' label was found to be an acceptable call to action for the grouping control.

Interpretation of user feedback responses indicated that auto-collapsing of groups when the number of groups is high or the number of medications in each group is high, would aid users in understanding the categories within a grouping set and enable quick navigation to the group category they were looking for. Auto-collapsing of groups carries some of the benefits and risks associated with filtering.

2.7.2 Handling Duplicates in Groups

When a grouping scheme is applied that is not mutually exclusive, some medications will need to appear in more than one group. This section provides guidance on how to present duplicate medications within such a grouping and to draw attention to their presence in the list.

An example of this would be where a patient has been prescribed aspirin to treat both their pain, and to thin their blood, thus there would be two reasons for prescribing in the 'Reason' column. If the user grouped the medications list by 'Reason for Prescribing', the aspirin prescription would logically belong to two groups: 'For Pain' and 'For Blood Thinning'.

Figure 31 is an example of how the list may look when first grouped using a grouping scheme that requires duplicates.

+ Group A (4) (1) medication appears in more than one group

+ Group B (3) (2) medications appear in more than one group

- Group C (2)

Medication -g

Medication -h

Figure 31: Example of Collapsing Groups Containing Duplicates

Figure 32 below shows that same list once the first two groups have been expanded indicating which medications within the groups are duplicates.

- Group A (4) (1) medication appears in more than one group

Medication -a

Medication -b

Medication -c

Medication -d



- Group B (3) (2) medications appear in more than one group

Medication -b

Medication -e

Medication -f



Group A
Group D

- Group C (2)

Medication -g

Medication -h

Figure 32: Example Showing Expanded Groups Containing Duplicates

2.7.2.1 Guidance

ID	Guideline	Status
MEDv-0094	Keep the number of grouping schemes that are not mutually exclusive to a minimum	Mandatory
MEDv-0095	When the List view has a grouping applied and a medication belongs to more than one group, duplicate the medication so that it appears in each group to which it belongs	Mandatory
MEDv-0096	Clearly mark medications that appear in more than one group by placing a 'duplicates icon' to the right of the medication line	Mandatory
MEDv-0097	Support selection of a 'duplicates icon' to display an inclusive list of the groups that the medication belongs to	Mandatory
MEDv-0098	Supplement the group headings and counts with an additional count of medications in that group for which there are duplicates and provide a clear text description for this count	Mandatory

Table 17: Guidance – Handling Duplicates in Groups

2.7.2.2 *Rationale*

This guidance is based on the assumption that the clinical application will necessarily need to support some grouping schemes that are not mutually exclusive. The guidance has established three approaches for handling grouping of a list using non-mutually exclusive groups:

- Duplicate items that appear in more than one group
- Define a primary group for every list item
- Combining values to create new groups

The guidance makes the assumption that it is not necessarily possible to define a 'primary' group for each medication that belongs to more than one group in a non-mutually exclusive grouping scheme.

Combining values to create groups means that a new group is created for every item that would otherwise belong in more than one group. This new group is usually named after the combination of values for the attribute that the list is being grouped by. For example, if you supported grouping medications by active ingredients and you were looking for one that contains both aspirin and paracetamol, you might expect to find them in those two groups but they would appear in a new group for medications containing (both and only) aspirin and paracetamol. This guidance therefore takes the view that it is important to support finding medications in the group or groups that they are expected to belong to.

Duplicate medications must be clearly marked to avoid the interpretation that the same drug has been prescribed more than once.

Though user feedback did not indicate duplication as the most user-preferred solution to non-mutually exclusive groups, based on interpretation of user expectations, duplication (with clear indication of duplicates) is considered to be the least unsatisfactory of the three solutions. Auto collapsing of groups may also help mitigate the potential confusion of duplication.

2.8 Sorting

2.8.1 Sorting Using Column Headings

Sorting of the list of medications is achieved by interacting with column headings and is thus restricted to those attributes that are visible in the list. This section provides guidance for supporting sorting via column headings. Figure 33 shows where the column headings are displayed.

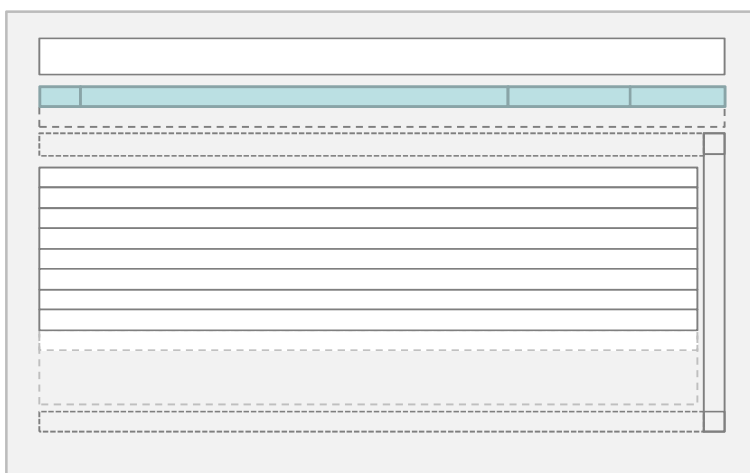


Figure 33: Medications Views Areas – Column Headings Used for Sorting

Figure 34 illustrates two guidance-compliant examples of displaying the current sort order by marking the column for the active sort and indicating the direction of the sort.

Start Date	⌵	Drug Details	Reason	Status	End Date
Start Date	⌵	Drug Details	Reason	Status	End Date

Figure 34: Two Approaches to Displaying the Active Sort Order

2.8.1.1 Guidance

ID	Guideline	Status
MEDv-0099	By default, sort medications reverse chronologically by start date (with the most recent start date first) when the filter is set to 'Current' in the List view	Mandatory
MEDv-0100	By default, sort medications reverse chronologically by end date (with the most recent end date first) when the filter is set to 'Past' in the List view	Recommended
MEDv-0101	Allow the sort order of a list in the medications list to be changed by clicking on a column heading	Mandatory
MEDv-0102	Allow the sort order of a list in the List view to be reversed by clicking on the column heading for the column with the active sort applied	Mandatory
MEDv-0103	Use formatting of the column heading to clearly indicate the column to which the sort order is currently applied	Mandatory
MEDv-0104	Use an icon in the column heading to indicate the current sort order	Mandatory
MEDv-0105	When the sort order is changed from start date to another attribute in the List view, retain the start date as a secondary sort order	Mandatory
MEDv-0106	Do not support sorting by attributes that are not visible (and thus are not represented by a column heading)	Recommended

Table 18: Guidance – Sorting Using Column Headings

2.8.1.2 Rationale

During five rounds of user feedback on the current medications list, the large majority of users either actively supported sorting the Current medications chronologically by start date with the most recent at the top, or did not contest the order. This was despite the acknowledgement that the current paper drug charts were ordered chronologically with the oldest at the top based on prescription written date. It is assumed that the prevalence of email clients that display emails in reverse chronological order by default partly explains this acceptance of reverse chronological ordering.

In contrast, user feedback suggested that Past medications should be ordered reverse chronologically by end date. This was so that more recently ended medication would be more obvious to the user. It is expected that a Timeline view of medications would provide the most effective means for clinicians to view the history of medications, as it would be more effective at indicating the interrelations between different medication's start and end dates.

2.9 Level of Detail

The Level of Detail control allows the set of information shown in the medication lines to be changed from minimal summary information through a sliding scale to a more detailed set of information. Figure 35 shows how the addition of a column is displayed when the Level of Detail control is used to display a higher level of detail.

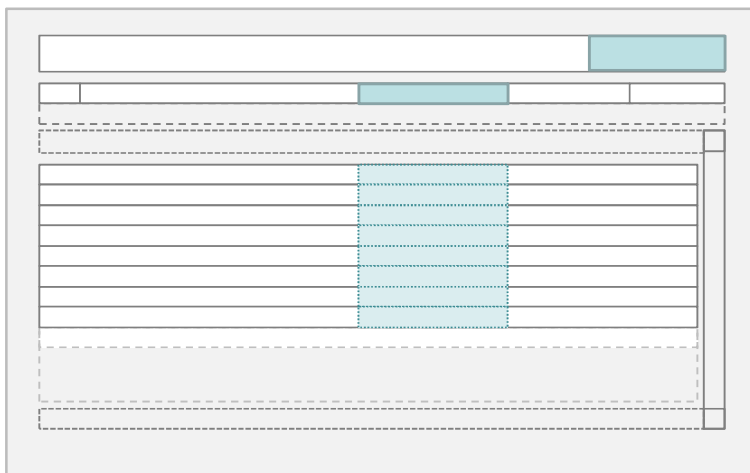


Figure 35: Medications Views Areas – Level of Detail Control and Additional Column

2.9.1 The Level of Detail Control

This section provides guidance for the provision of a control that adjusts the amount of information that is displayed for each medication. The control used to change the level of detail provides zoom in and zoom out functionality to increase and decrease the number of attributes visible for each medication. Figure 36 illustrates the structure of a Level of Detail control.

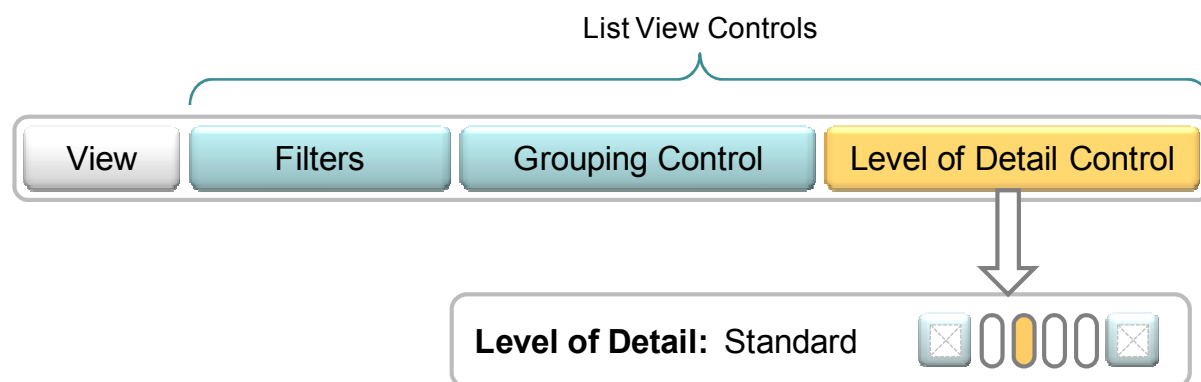


Figure 36: List View Controls – Level of Detail

2.9.1.1 Guidance

ID	Guideline	Status
MEDv-0107	For the List view, provide a control for changing the level of detail (columns and attributes displayed) for each medication line	Mandatory
MEDv-0108	Precede the Level of Detail control with the label 'Level of Detail'	Mandatory
MEDv-0109	Use the Level of Detail control to clearly display the currently selected level, and the total number of levels of detail	Mandatory

ID	Guideline	Status
MEDv-0110	Within the List view Levels of Detail control, place the control for reducing the level of detail to the left, the control for increasing the level of detail to the right, and the indicators for each level between the two	Mandatory
MEDv-0111	Within the List view Levels of Detail control, display the label for the currently selected level of detail immediately to the right of the 'Level of Detail' label	Mandatory
MEDv-0112	Provide a small number of levels of detail via the Level of Detail control in the medications List view	Mandatory
MEDv-0113	Display a label of 'Low' for the lowest level of detail in the List view	Mandatory
MEDv-0114	Label the second lowest level of detail in the List view 'Standard'	Mandatory
MEDv-0115	Set the default level of detail for the List view to 'Standard'	Mandatory
MEDv-0116	Provide controls for navigating 'up' and 'down' the levels of detail in the List view	Mandatory

Table 19: Guidance – The Level of Detail Control

2.9.1.2 Rationale

The Levels of Detail control extends the currently visible set of attributes for all medications in the list to allow comparison between them. As more information is added to the list, it becomes harder to distinguish individual medications and there are likely to be fewer medications visible since each line will be greater in height. The Levels of Detail control thus supports a few levels to allow more information to be displayed, and is limited to prevent the display of so much information for one medication that the benefits of being able to see a list and compare across medications is lost. Accessing all the details for one medication is described in section 2.11.

The Level of Detail control provides the opportunity to reveal extra information as and when it is needed. For example, a patient safety hazard was raised relating to the information in the Start Date column. If this information is presented as a date without a time, then the status column must be used to determine which of a series of medications that start on the same day have actually been started. A higher level of detail could reveal the time as well as the date in the Start Date column.

User feedback supported the idea that even with the presence of other medications views such as the Drug Chart, being able to provide one level of detail for medications that would satisfy all clinical roles in all contexts would be unlikely and therefore it should be possible to access different amounts of detail 'on request'. Feedback indicated that access to many of these details would be useful across all the medications in the list at the same time, as well as one at a time.

The slider mechanism for varying the levels of detail was clearly understood when shown to users.

2.9.2 Information Display for Specific Levels of Detail

The guidance in this section defines some of the specific attributes that should be displayed for the lower levels of details. It also defines how to display the additional attributes as the level of detail is increased.

Important

Guidance for the display of information for specific levels of detail is based on the assumption that the full width of a 1024 by 768 pixel display will be available for the display of the List view.

Information displayed in the lowest two levels of detail is more closely defined than other levels. Figure 37 to Figure 39 illustrate the addition of information both as columns and as additional information within one column, as the level of detail is increased.

Start Date	Drug Details	Reason	Status	End Date
Date	<input type="checkbox"/> drug name	<i>Reason</i>	Status	Date
Date	drug name	<i>Reason</i>	Status	Date

Figure 37: Example of Columns and Details for a Low Level of Detail

Start Date	Drug Details	Reason	Status	End Date
Date	<input type="checkbox"/> drug name and drug details	<i>Reason</i>	Status	Date
Date	drug name and drug details	<i>Reason</i>	Status	Date

Figure 38: Example of a Standard Level of Detail

Start Date	Drug Details	Other Information	Reason	Status
Date	<input type="checkbox"/> drug name and drug details with greater detail than previous levels	Other information	<i>Reason</i>	Status Date
Date	drug name and drug details with greater detail than previous levels	Other information	<i>Reason</i>	Status Date

Figure 39: Example of a Higher Level of Detail with an Additional Column

2.9.2.1 Guidance

ID	Guideline	Status
MEDv-0117	When the lowest level of detail is selected in the List view, display drug names only in the Drug Details column	Mandatory
MEDv-0118	When the lowest level of detail is selected in the List view, display Start Date, Drug Details, Reason and Status columns	Mandatory
MEDv-0119	When the standard level of detail is selected in the List view, display drug details (such as dose, frequency and route) in addition to the drug name in the Drug Details column	Mandatory
MEDv-0120	For higher levels of detail in the List view, show additional attributes that are useful to see for multiple medications simultaneously	Mandatory
MEDv-0121	Support the display of limited additional columns in the List view for higher levels of detail	Mandatory

Table 20: Guidance – Information Display for Specific Levels of Detail

2.9.2.2 Rationale

The 'low' level of detail is designed to provide a summary list of medications that is most useful for an initial review of an entire list of a patient's medications.

Patient safety hazard assessments raised a concern that clinicians might make decisions based on the information displayed in the low level of detail and that this information may be insufficient for such decisions. The provision of a summary list is considered key in supporting certain types of review of a patient's medications so to mitigate the identified risk, the Level of Detail control defaults to the Standard view which has more information in the Drug Details column and includes a reason column. By defining a default of 'Standard', the guidance also ensures that defaults are not inappropriately set to a high level of detail.

2.10 Selection and Action

This section provides guidance on the selection of one or more medications in the list, and the presentation of a context menu for displaying available functions.

2.10.1 Selection

Figure 40 illustrates a selected item in a list.

Medication A
Medication B
Medication C
Medication D




Figure 40: Example of a Selected Item in a List

2.10.1.1 Guidance

ID	Guideline	Status
MEDv-0122	Support click (or keyboard selection) to select a medication in the medication list	Mandatory
MEDv-0123	Clearly highlight selected medications in the medication list	Mandatory
MEDv-0124	Maintain the selection of a medication when switching between Medications Views (such that a medication selected in List view is automatically selected when switching to the Drug Chart)	Mandatory
MEDv-0125	Maintain the selection of a medication when applying or changing a grouping or a sort order and ensure that the selection remains visible	Mandatory
MEDv-0126	Support the selection of multiple items in the List view using CTRL and click for discrete selections, and SHIFT and click for contiguous selections	Mandatory
MEDv-0127	Support keyboard-only equivalents such as arrow keys and the SPACEBAR for selecting multiple items in the List view	Mandatory

Table 21: Guidance – Selection

2.10.2 Context Menus

This section provides guidance on the display of a context menu that provides access to relevant functions for medications that have been selected. Figure 41 shows two medications selected and a context menu (such as a right-click menu) displayed.

Medication A
Medication B
Medication C
Medication D
Medication E
Medication F
Medication G
Medication H

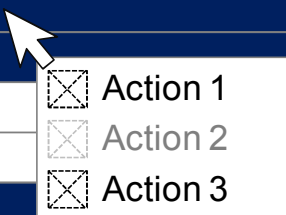


Figure 41: Example of Multiple Selections and a Context Menu with One Action Disabled

2.10.2.1 Guidance

ID	Guideline	Status
MEDv-0128	Support the display of a context menu for selected medications in the List view (for example, via right-click)	Mandatory
MEDv-0129	In the context menu for selections in the List view, provide appropriate actions and options	Mandatory
MEDv-0130	In the context menu for selections in the List view, support actions with icons where appropriate	Recommended
MEDv-0131	In the context menu for selections in the List view, grey out actions that are unavailable or disallowed for one or more of the current selections	Mandatory
MEDv-0132	In the context menu for selections in the List view, prioritise frequently used actions by placing them higher in the list	Mandatory
MEDv-0133	In the context menu for selections in the medications list, group similar options so that direct actions, actions that permit addition of information and actions that display more information are each grouped together	Mandatory
MEDv-0134	If the clinical application cannot support the display of information about multiple items either simultaneously or sequentially, information items that are only relevant to a single item should be removed	Mandatory

Table 22: Guidance – Context Menus

2.11 All Details

2.11.1 Displaying All Details for One Medication

This section provides guidance for supporting access to detailed information about a single medication. Details for one medication are presented such that part of the list is still visible and the currently selected medication within that list is clearly indicated.

Figure 42 illustrates the display of all details for one selected medication in a list.

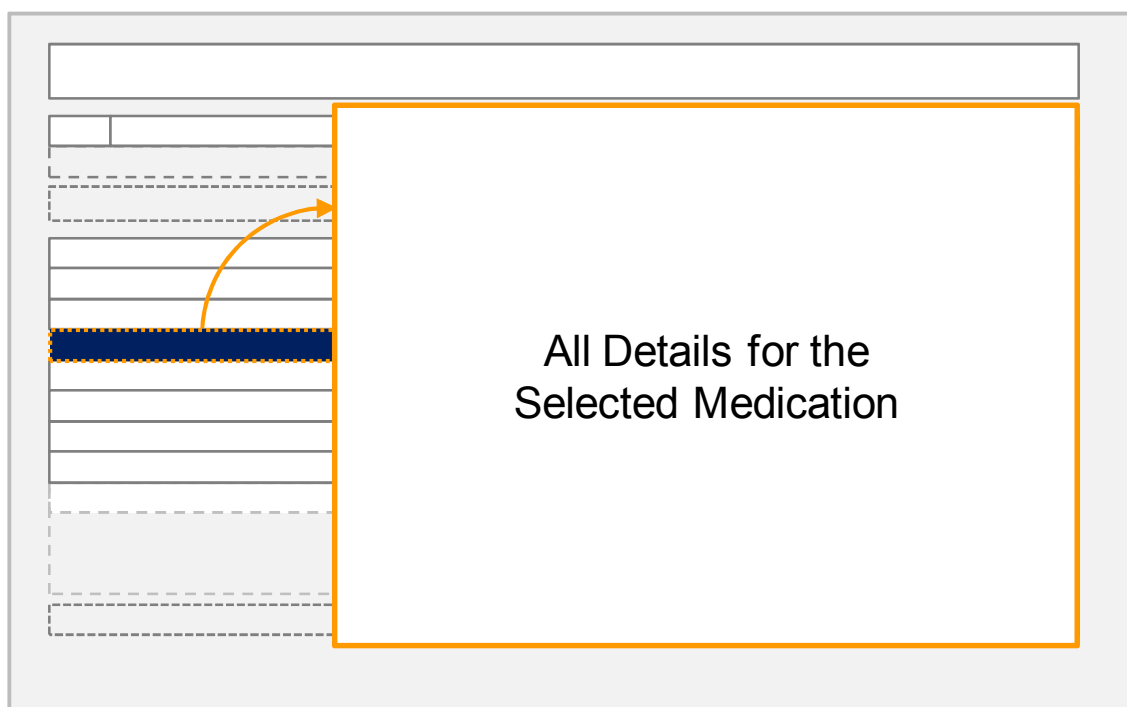


Figure 42: Medications Views Area – Displaying all Details for One Medication

2.11.1.1 Guidance

ID	Guideline	Status
MEDv-0135	In the context menu for selections in the List view, provide an option for displaying all details for the selected medication	Mandatory
MEDv-0136	Support accessing all details for one medication by double-clicking the medication line in the medication List view	Mandatory
MEDv-0137	Display all details for one medication such that the beginning of the Drug Details column in the List view from which the medication was selected is also visible	Recommended
MEDv-0138	When displaying all details for one medication in the medication list, provide controls for accessing all details for the next and previous medications in the list	Mandatory
MEDv-0139	Support the display of all details for a medication selected without losing the context of the view from which it was opened; clearly mark the selection in the list and associate it with the details displayed	Mandatory
MEDv-0140	When displaying all details for one medication, support the minimisation of information that is not needed (for example, by providing sections that can expand and collapse)	Mandatory

Table 23: Guidance – Displaying All Details for One Medication

2.11.1.2 Rationale

The presentation of all details for a medication such that the list from which it was opened is visible, follows the principle of presenting an overview and providing access to details on demand, whilst maintaining context.

Two rounds of user feedback indicated that the method for accessing all the details of a medication was familiar and expected.

3 DOCUMENT INFORMATION

3.1 Terms and Abbreviations

Abbreviation	Definition
CUI	Common User Interface
NPSA	National Patient Safety Agency
UI	User Interface

Table 24: Terms and Abbreviations

3.2 Nomenclature

This section shows how to interpret the different styles used in this document to denote various types of information.

3.2.1 Body Text

Text	Style
Code	Monospace
Script	
Other markup languages	
Interface dialog names	Bold
Field names	
Controls	
Folder names	Title Case
File names	

Table 25: Body Text Styles

3.2.2 Cross References

Reference	Style
Current document – sections	Section number only
Current document – figures/tables	Caption number only
Other project documents	<i>Italics</i> and possibly a footnote
Publicly available documents	<i>Italics</i> with a footnote
External Web-based content	<i>Italics</i> and a hyperlinked footnote

Table 26: Cross Reference Styles

3.3 References

Reference	Document	Version
R1.	NPSA Safe Medication Practice Work Programme 2007–08 – Safety in doses: improving the use of medicines in the NHS http://www.npsa.nhs.uk/site/media/documents/2510_Safety_in_doses_WEB.pdf	2007–08
R2.	Design Guidance – Medications Management – Drug Administration	2.0.0.0
R3.	The Dictionary of Medicines and Devices http://www.dmd.nhs.uk/	

Table 27: References