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Implementation plan 2011–12

Australian Medicines Terminology

Version 1.0 – 20110915

Final

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Executive summary

The way that clinical information about individual consumers is captured, shared and interpreted by healthcare providers is vital to improving the quality and safety of healthcare delivery and is fundamental to the success of eHealth.

The key to sharing this information safely is to adopt a standard clinical language, terminology and information structure that can be clearly understood by both users and the computer systems that enable the delivery of healthcare services to consumers.

A standard medicines terminology enables medicines in clinical communications to be clearly recorded and consistently displayed and interpreted. The Australian Medicines Terminology (AMT) is a core component of the framework of information structures and terminology that enable semantic interoperability in healthcare exchange and re-use.

AMT implementation is intended to provide this single, common language that can be used to describe medicines and associated syntax. AMT is intended to be machine interpretable and will be consumed, referenced or output by healthcare IT systems.

While AMT has been available for implementation for some time, adoption has been reserved. This is partly due to the limited drivers for vendors and implementers to adopt AMT, and a desire by some to take a 'wait and see' approach. Other deterrents noted by vendors include the lack of guidance material on how to implement AMT in their respective systems, as well as the absence of a long-term roadmap for the development of AMT.

This implementation plan is an important step in addressing these barriers to adoption. It puts AMT in the context of other activity by vendors and governments to progress eHealth reform.

This implementation plan sets out NEHTA's delivery dates for a set of key products to support the increased adoption of AMT.

The immediate focus targets implementation by July 2012 and hence this plan is prescriptive about the activities and outputs required to achieve that goal. Outputs that NEHTA has been asked to deliver over the coming months include an implementation guide, reference implementations, a mapping guideline, a governance model, and other material.

Further to this, the plan describes at a high level the development of an AMT roadmap, which will capture the prioritised AMT requirements, define the increasing clinical use cases that AMT will support and the benefits to be gain from these future releases of AMT. This future phasing covers the period July 2012 to July 2014.

Our aim is to provide a staged delivery approach seeking to evolve maturity and take-up over time, but ensuring that value is delivered from AMT use as soon as possible.

The first release of this implementation plan was developed under the oversight of the eHealth ICT Industry Implementation Group, chaired by the Department of Health and Ageing (DOHA) and with representatives from the Medical Software Industry Association (MSIA), Australian Information Industry Association (AIIA), Australian Association of Practice Managers, Aged Care IT Vendor Association, the Department of Human Services (Medicare) and NEHTA.

This implementation plan sets out the actions that we need to take, based on our initial discussions with members of the eHealth ICT Industry Implementation Group, and in particular the MSIA. However, as we consult with a wider group of vendors and implementers, we will refine the actions require to increase uptake, especially beyond July 2012. This implementation plan will be updated periodically to reflect new information about current implementations and other activity required to increase the use, and ultimately the benefits, of AMT.

1 Project purpose

This section of the implementation plan defines what the project is aiming to achieve and why it is important to achieve it.

1.1 Document purpose

This document sets out the implementation plan for AMT: it sets out the requirements, approach and timeframe for implementation of AMT by healthcare software vendors to the Australian market. While this document focuses on the implementation activity leading up to 30 June 2012, it also sets out the longer term strategic position for AMT and the required vendor deliverables after this date.

This plan has been developed under the oversight of the eHealth ICT Industry Implementation Group, with particular input from the MSIA.

1.2 Policy outcome

The way that clinical information about individual consumers is captured, shared and interpreted by healthcare providers is vital to improving the quality and safety of healthcare delivery and is fundamental to the success of eHealth.

The key to sharing this information safely is to adopt a standard clinical language, terminology and information structure that can be clearly understood by both users and the computer systems that enable the delivery of healthcare services to consumers.

A standard medicines terminology enables medicines in clinical communications to be clearly recorded and consistently displayed and interpreted. AMT is a core component to enable semantic interoperability in healthcare exchange and reuse.

1.3 Benefits statement

Each year, a significant number of adverse events occur due to inaccurate, misinterpreted information communicated across the health sector. The delivery of a standard clinical language for use across health information systems can therefore be a significant step towards improving the quality and safety of healthcare, by enabling unambiguous communication and interpretation across different healthcare settings.

As part of the evolution of eHealth, it is essential that Australian clinical systems utilise an accessible standard terminology to uniquely identify and describe the medicines available in Australia for use by computers, clinicians and patients. To this end, AMT uniquely and unambiguously codes and describes all commonly-used medicines and can be implemented in clinical information systems for the following activities:

- Prescribe;
- Record;
- Review;
- Issue, including dispense;
- Administer; and
- Transfer of information.

AMT implementation is not just about the implementation of a data set or terminology but an underpinning of the eHealth agenda in the medicines area. Our ultimate aim is to ensure that in all places during the process from manufacture through to use, medicines are uniquely identified through the use of AMT. As a result AMT can enable:

- Effective and efficient prescribing of medicines leading to reduced cost and improved data quality.
- The communication of dispense events including:
  - indicating where alternative medicines have been dispensed; and
  - compliance with the regime (that the prescription has been dispensed and that the drug has been administered as prescribed).
- Communication of events relating to medicine prescribing and administration, through summary information such as discharge and other health summaries.
- Traceability of medicines throughout the prescribe-dispense-administration cycle.
- A reduction in fraudulent activities (such as false dispensing) and grey imports.
- Decision support (within and across system boundaries where it is supported by structured messaging).
- A number of secondary uses such as transparency of pricing, procurement (if appropriate linking exists), research, etc.

The benefits stated here will not all be available in the first phase. The ongoing development and management of the AMT roadmap will set out the new requirements and features of AMT. These items will be prioritised with the vendor community, and with each future release the expected benefits will be made explicit.

1.4 Intended audience

The audience for this document is primarily the vendor community. In addition, to gain support for this plan, a variety of stakeholders will be consulted including:

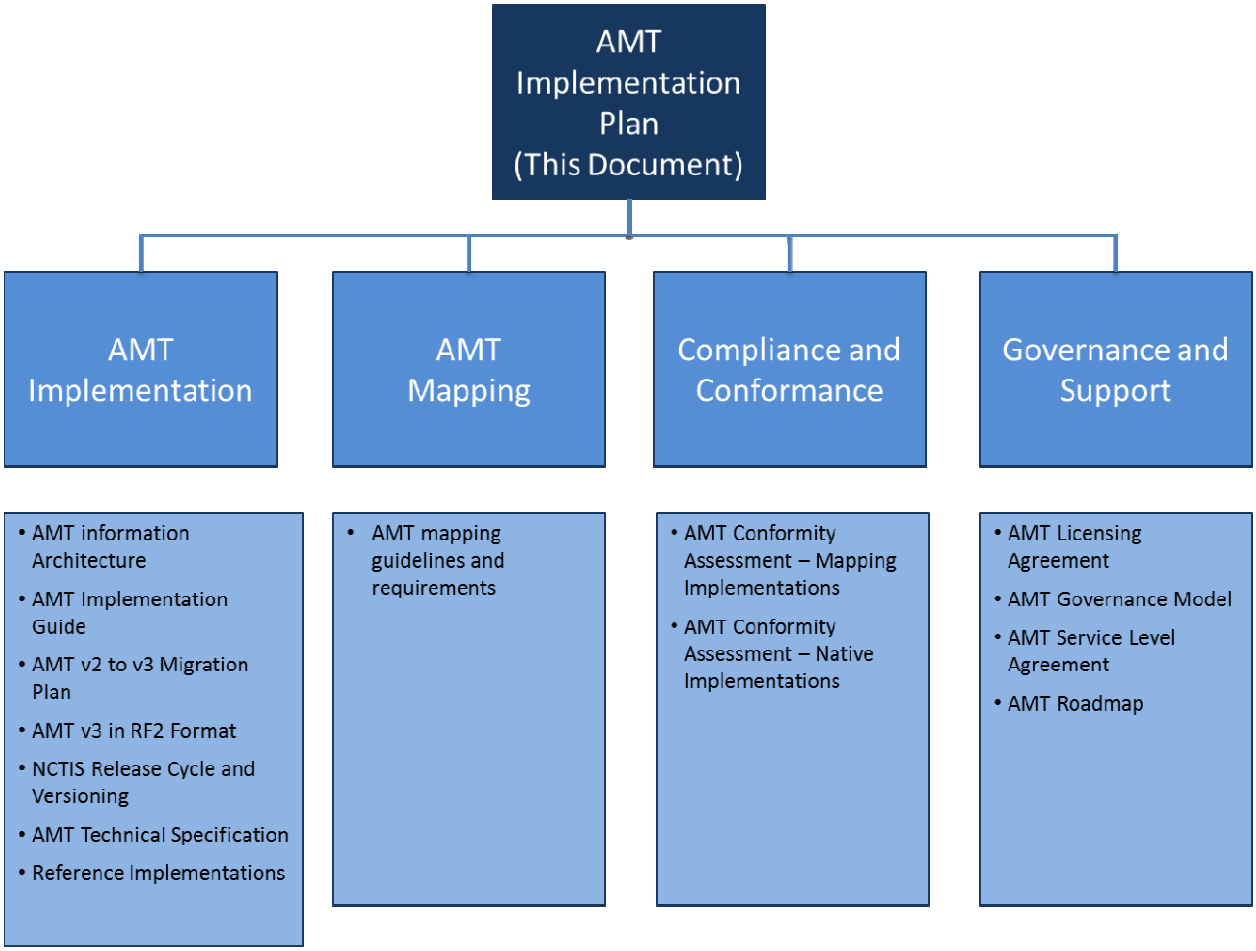
- Wave 1 and Wave 2 eHealth sites.
- GP vendor panel participants.
- Other vendors providing support for terminology and medicines data sets.
- Clinical and operational community within healthcare organisations across Australia.
- DOHA and jurisdiction health departments.
- NEHTA terminology teams plus:
  - delivery programmes
  - clinical leads
  - clinical safety teams.

1.5 Document context and supporting material

This section shows the implementation plan in relation to the suite of documents that the vendor community will need to consume in order to deliver this plan. The documents have been grouped into four areas:

- AMT implementation
- AMT mapping
- Compliance and conformance
- Governance and support

This implementation plan acts as the starting point for implementers of AMT by showing how these deliverables fit together, and when different deliverables are scheduled for completion.



In Section 6 we set out a summary of these documents and the schedule for their delivery.

2 Background

From conception to development and early implementation, people across the clinical terminology, standards, software vendor and government communities have worked to support the vision of pervasive use of AMT across healthcare systems.

2.1 Prior states of terminology adoption

Since the implementation of clinical information systems in Australia, a range of code sets have been introduced by healthcare institutes and different clinical domains in an attempt to codify and/or represent the concepts used to describe their clinical practices including medications management, or to fulfil statutory/statistical reporting requirements. As such, there are proliferations of code sets in use even within any single healthcare institution.

A survey commissioned in 2005 reported that the following code sets were commonly in use in Australia[1]:

- General Practice:
  - International Classification of Primary Care 2 PLUS (ICPC2+)
  - International Classification of Health Problems in Primary Care (ICHPPC)
  - Doctor Command Language (DOCLE)
- Pathology:
  - Logical Observation Identifiers Names and Codes (LOINC)
- Psychiatry and Psychology:
  - Diagnostic and Statistical Manual of Mental Disorders (DSM IV)
- Acute Care:
  - Diagnosis Related Group (DRG)
  - International Classification of Diseases-10 Australian Modification (ICD-10-AM)
  - International Classification of Procedures in Medicine (ICPM)
  - Australian Health Care Intervention (AHCI) codes
  - International Classification for Nursing Practice (ICNP)
- Community:
  - International Classification of Diseases-9-Clinical Modification (ICD9-CM)
  - Australian Community Based Health Services Code set (ACBHS)
  - Australian Classification and Terminology for Community Health (CATCH)

This list demonstrates the wide range of structured data used in clinical systems. In some systems, clinical terminology is embedded into system design to enable decision support, and is therefore integral to the design of the system.

[1] DH4, *Needs and Requirement for Health Terminology in Australia*, 2005.

One of the challenges faced as a national integrated eHealth system develops is that the code sets that are in current use were principally designed for an environment where systems were required either to communicate with only a small, known set of partner systems, or to stand alone and not communicate in any interoperable sense at all. When information collected on this basis is consolidated from a range of information sources (e.g. within a Personally Controlled Electronic Health Record (PCEHR)) or re-used for other purposes (e.g. within shared care), the collated information cannot always be compared safely, because similar ideas are identified with different codes and described in different ways.

2.2 AMT development and implementation 2007-2011

AMT has been designed to be the Australian medicines extension for SNOMED CT® and contains as close to all prescription items as possible.

The early development and implementation of AMT can be summarised by the following milestones:

- March 2007 – Establishment of first Medicines Reference Group.
- December 2007 – The first national release of AMT.
- April 2009 – Medicines Reference Group replaced by AMT Support Group.
- November 2009 – AMT v3 model nationally agreed.
- November 2010 - First state-based implementation achieved.
- February 2011 – AMT v3 alpha release to limited audience.
- March 2011 - First reference sets released in line with the IHTSDO Release Format 2 specification.
- August 2011 – AMT v3 beta in development.
- December 2007 to July 2011 – Monthly AMT releases.

3 Transition path 2012-2013-2014

3.1 Implementation options

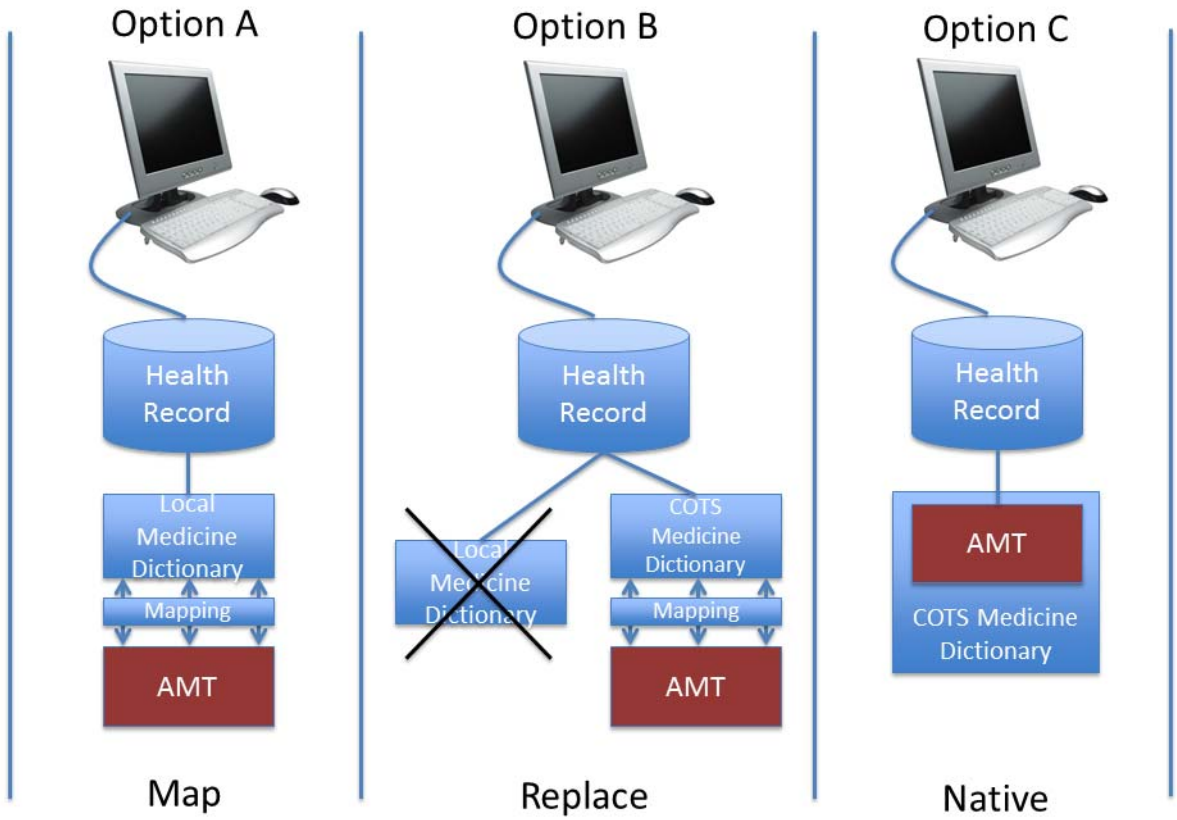
There are three broad options of increasing maturity for the implementation of AMT:

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

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

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

These options are illustrated below.

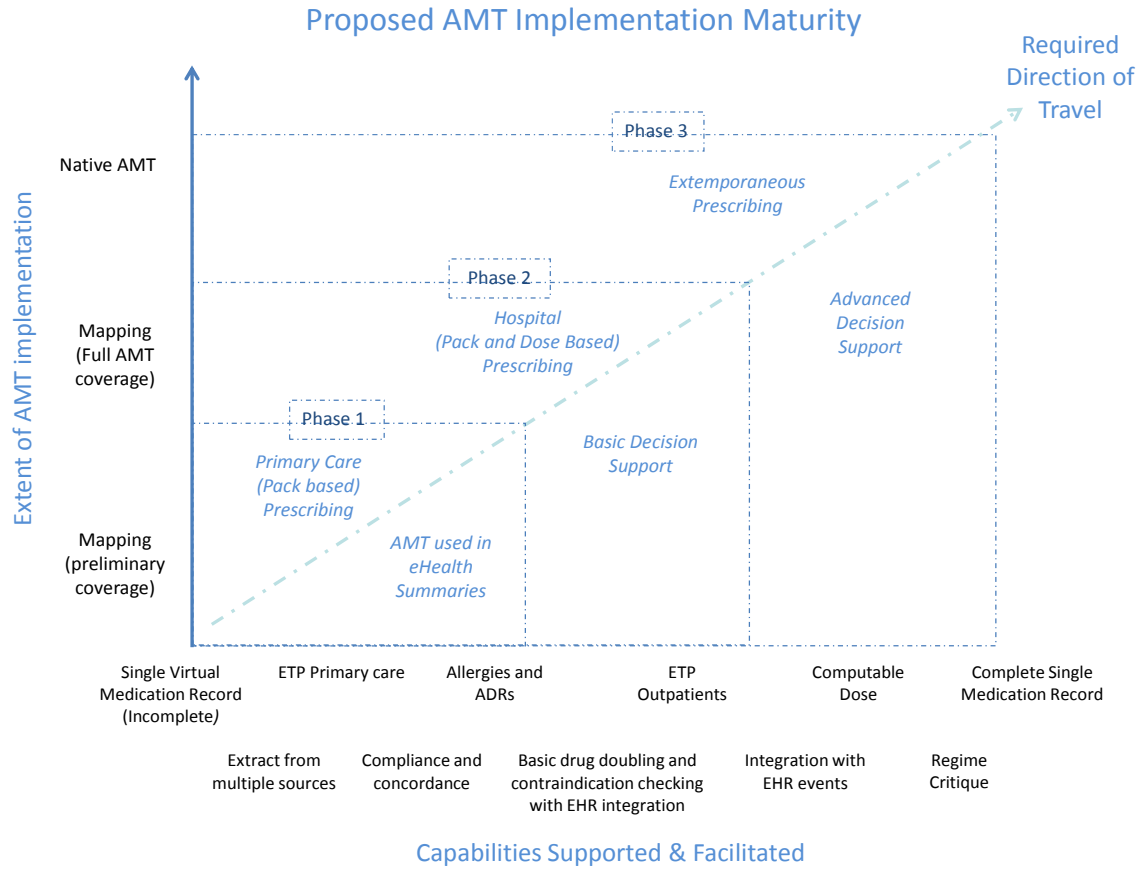


3.2 Staged approach

A single step to 'native' implementation of AMT will be time-consuming for all and problematic for some vendors, meaning that there would be a delay to delivering value to end-users and patients. It is also challenging for the vendor community when they are being tasked with supporting multiple concurrent priorities to deliver interconnected healthcare across Australia. Vendors may continue to use a third-party or proprietary medicines database to provide AMT functionality, therefore it is not expected that vendor systems will be required to natively consume AMT in the first instance.

For this reason we have proposed a phased approach to implementation that allows current initiatives to be supported through an initial mapping approach, but permits the move towards a native implementation of AMT and the ongoing evolution of the features of AMT.

As an illustration, the following diagram shows a possible set of end-user features delivered by the vendor community that are based on the developing set of capabilities (underpinned by AMT features) along the X axis and a more mature implementation of AMT along the Y axis. A more detailed and precise product roadmap will be provided in alignment with the release schedule set out in Section 6.



3.3 Implementation schedule

The development of AMT and its subsequent implementation is being set out in two planning periods:

- Short-term future state: resulting in a single implementation date of July 2012. This we will refer to as Phase 1.
- Long-term future state: delivering future releases of AMT for implementation from July 2013 and July 2014. These releases we will refer to as Phase 2 and Phase 3 respectively.

The content of each of these phases is set out in Sections 3.3.1 and 3.3.2 below.

The target end state is fully coded and structured clinical records that support:

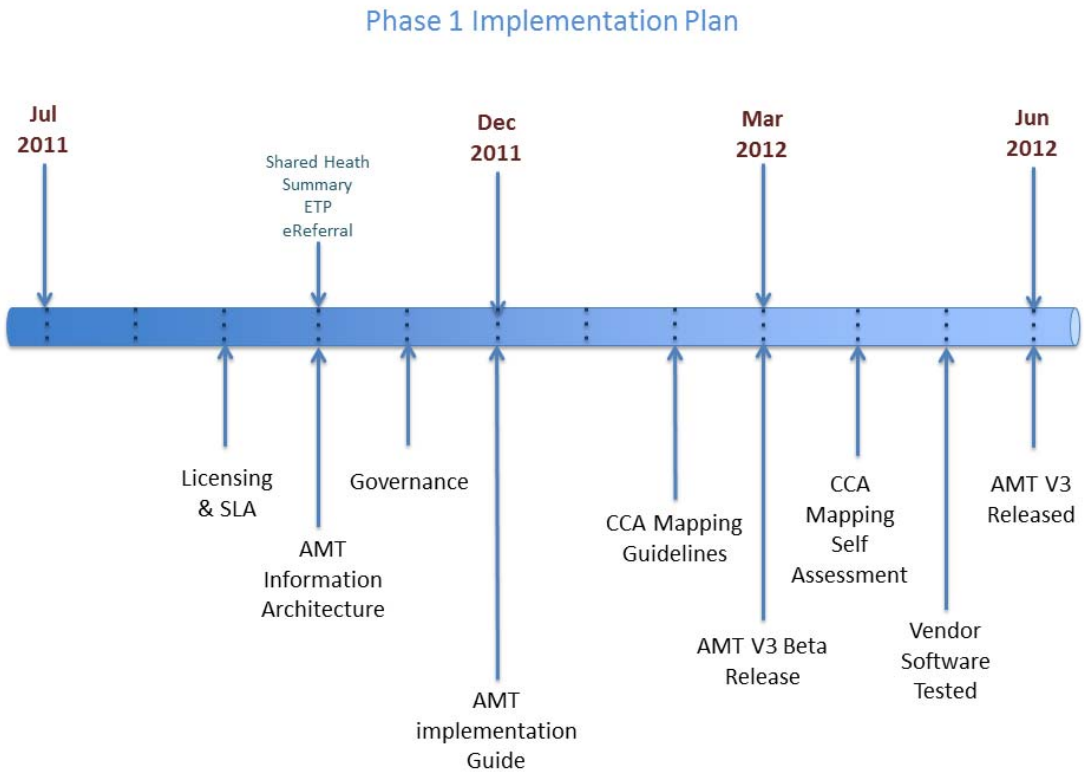
- decision support activities for use in combination with knowledge bases providing information on drug interactions, contra-indications, drug-allergy, etc.;
- information to be shared reliably and safely (based on semantic interoperability) from clinician to clinician via independent computer systems; and
- a variety of appropriate secondary use purposes.

3.3.1 Phase 1 (July 2012)

The intention of the first phase of the AMT implementation plan is to support the following NEHTA programmes of work:

- Implementation of the PCEHR Wave 1 and Wave 2 eHealth sites.
- Early adopters of AMT:
  - Cerner (Department of Health Victoria)
  - PharmBiz (DOHA)
  - MIMS
  - CharmHealth
  - Other State Health Departments currently in evaluation phases.
- Support the implementation of Electronic Transfer of Prescriptions.
- Support eHealth summaries carrying medicines information.

The following chart shows the proposed timeline for the preparation of specifications, AMT implementation guidance, and the release of AMT v3 (see Section 6 for details). It also sets out the envisaged schedule for the testing and implementation of AMT.



3.3.1.1 Drivers and requirements

3.3.1.1.1 Drivers for AMT uptake

There are currently a number of eHealth initiatives and drivers for the adoption of a single shared dictionary of prescribable medicines across Australia. These initiatives include:

- Delivery of the *Electronic Transfer of Prescriptions (ETP) Specifications v1.1*, which requires implementers to populate inter-organisation messages with AMT codes (i.e. GP to Pharmacy and Pharmacy-generated dispense record).
- The Fifth Community Pharmacy Agreement, which includes contract terms that are a key driver for the uptake of ETP.
- Early implementers, such as HealthSMART Victoria. This is a state-based program that requires that the most current and future terminologies, architecture and functionality are adopted, e.g. PBS requirements, and the use of terminologies such as the AMT and SNOMED CT®-AU.
- Activity in eHealth lead implementation sites:
  - Wave 1: Hunter Urban Division of General Practice (HUDGP), GP Partners Limited, and Melbourne East General Practice Network Limited (MEGPN); and
  - Wave 2: Brisbane South Division, NSW Department of Health, Cradle Coast Electronic Health Information Exchange (Tasmania), Calvary Health Care ACT, Northern Territory Department of Health and Families, St Vincent and Mater Health Sydney, Fred IT, Medibank Private, Mater Misericordiae Health Services Brisbane.
- DoHA's PharmBiz project implementing the PharmCIS IT system to support the administration of the PBS will adopt and publish using the AMT.
- Upgrade of the AMT model from version 2 to version 3 to align with the SNOMED CT-AU model and release format.
- GP desktop vendor panel adoption of AMT.

3.3.1.1.2 Requirement summary

The requirement for the implementation of AMT is summarised below.

AMT has been developed to be fit for the purpose of unambiguously identifying for clinicians and computer systems commonly used medicines[2] in Australia and can be implemented in clinical information systems.

Current contracts for the eHealth lead implementation sites must incorporate fully structured and coded data groups, as defined by the relevant *CDA Implementation Guide*. Where these guides include current medications they are required to use AMT and its identifiers for the coded data group.

The following is an extract of a statement describing the required use of AMT. This is currently contained in all NEHTA eSolutions specifications[3] (ETP included):

> "Where the therapeutic good can be identified by an AMT (Australian Medicines Terminology) concept, this **SHALL** be the AMT ConceptID and Preferred Term."

This statement acknowledges that AMT, in its current release, does not cover all the medicines required to support all prescriptions (for example total parenteral nutrition (TPN) solutions). Therefore, the obligation derived from the NEHTA specifications is that AMT is required to be implemented when the medicine in question is included in the currently-released version of AMT.

3.3.2 Future phases

Future phases will seek to build on the first implementations of AMT and move towards a more native implementation. AMT will be extended to support dose-based and extemporaneous prescribing in the hospital environment. Additionally, we will respond to vendor needs to be able to link AMT to decision support and reference content. This will include the integration of AMT into SNOMED CT-AU and the release of a single consolidated clinical terminology bundle in Australia.

The detailed aspects and timing of future phases will be planned into the NEHTA AMT work programme following consultation with the implementer and vendor communities. We would envisage publishing the product roadmap on a six-monthly basis and will commence by publishing the detailed implementation plan for Phase 2 in July 2012.

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[2] Currently this includes all PBS/RPBS, TGA AUSTR and a range of AUSTL items.

[3] Reference examples:

(1) *NEHTA ePrescription SDT*, v3.1 published 17 Dec 2010; Section 4.5 Therapeutic Good Identification, p.22.
(2) *NEHTA Dispense Record SDT*, v3.1, published 17 Dec 2010; Section 4.5 Therapeutic Good Identification, p.20.
(3) *NEHTA Prescription Request SDT*, v1.1 published 17 Dec 2010; Section 5.2 Therapeutic Good Identification, p.31.
(4) *NEHTA Discharge Summary SDT*, v3.3; published 6 June 2011; Section 5.7 Therapeutic Good Identification, p.214.

4 Support model

NEHTA will maintain a list of parties that are implementing AMT (i.e. those vendors/users that have signed a licensing agreement and declared that they have started a programme of work to map or implement AMT). With the consent of license holders, this information will be publicly available to allow other vendors and implementers to see activity occurring within the marketplace.

The NEHTA AMT Service Level Agreement will more fully express the support that users and vendors can expect from NEHTA within either Production or Non-production environments.

NEHTA has a defined operational support structure in place to facilitate the restoration of normal operational service with minimal business impact within agreed service levels and business priorities.

The services to be provided by NEHTA under this Service Level Agreement (SLA) are Service Desk support services with respect to the above implementations, as described in this agreement.

The NEHTA Service Desk support structure is made up of two levels of customer support, as follows:

First level support First level support is provided by the Service Desk customer support team, which is the single point of contact for the customer. All incidents are uniquely identified, classified, prioritised and where possible resolved. If the Service Desk is unable to resolve the incident and/or request, it will be escalated to Second level support for action and resolution.

Second level support Second level support is instigated by NEHTA's Service Desk. Items escalated to second level support require more specialist skills, and are likely to be of a more complex nature, requiring more analysis and (probably) more time to resolve.

Services are provided in the form of telephone, email, and fax support. The provision of on-site support is provided at the request of the customer and only when approval has been obtained by NEHTA.

NEHTA will provide general support and guidance where possible (i.e. limited by resource availability) to other parties interested in the AMT.

5 Engagement

A variety of methods will be used for communication and engagement with vendors and users of AMT. They will include:

- Regular electronic updates via email to registered users.
- Publicity through road shows and education sessions hosted by the Australian Clinical Terminology User Group and NEHTA. Road shows will be organised at times to coincide with the annual planning cycle and major releases of AMT.
- Regular open-house vendor meetings.

Escalations in the first instance will be to the NEHTA Terminology Product Manager, and subsequently to the Head of Policy and Information Services. The eHealth ICT Industry Implementation Group will act as the final point of escalation and direct the AMT roadmap.

Further details of the escalation arrangements will be set out in the AMT governance model.

6 AMT product delivery schedule

	Deliverable	Document Summary	Proposed Delivery Date
AMT Implementation	AMT Information Architecture	Provides a high-level view of the structure of the AMT information model.	v2 available v3 Oct 2011
	AMT v2 Editorial Rules	Provides a detailed view of the rules used to create AMT v2 content.	Available
	AMT v3 Editorial Rules	Provides a detailed view of the rules used to create AMT v3 content.	Draft Jan 2012 Final Mar 2012
	AMT Implementation Guide	Sets out guidance for vendors implementing AMT within their software applications.	Draft Dec 2011 Final Mar 2012
	AMT v2 to v3 Migration Plan	Document and data to help users transition from v2 to v3.	Beta Mar 2012 Final Jun 2012
	AMT v3 in RF2 Format	The content set adopting the v3 structure and released using the IHTSDO Release Format 2.	Beta Mar 2012 Final Jun 2012
	NCTIS Release Cycle and Versioning	Sets out the release frequency and process for the National Clinical Terminology and Information Service's products.	Available
	AMT Technical Specification	Sets out the model, concepts and structure for AMT v2 releases.	Available
AMT Mapping	AMT mapping guidelines and requirements	Determines when it is appropriate to map and what could be mapped. Identifies formats and processes required and provide guidance on the development and maintenance of maps of local code systems to the AMT.	Oct 2011

	Deliverable	Document Summary	Proposed Delivery Date
Compliance and Conformance	AMT Conformity Assessment – Mapping Implementations	A set of documents that contain relevant requirements, assessment processes, and associated assessment artefacts for assessing: • mapping process and methodology followed; and • clinical systems integrating AMT via mapping.	Sept 2011 for participating vendors of eHealth sites. Feb 2012 for wider industry (following industry consultation).
	AMT Conformity Assessment – Native Implementations	A set of documents that contain relevant requirements, assessment processes, and associated assessment artefacts for native implementations of AMT.	Jun 2012
Governance and Support	AMT Licensing Agreement	Sets out the licensing arrangements for AMT.	Draft Sept 2011 Final Dec 2012
	AMT Governance Model	Sets out governance structures, representation and terms of reference of each of the vendor, user and NEHTA groups involved in the development and maintenance of AMT and related systems.	Nov 2011
	AMT Service Level Agreement	Sets out the support arrangements and levels of services that implementers and live users of AMT can expect from NEHTA.	Draft Sept 2011 Final Dec 2011
	AMT Roadmap	Sets out the areas for development of AMT over the coming 12 months and scope items that are being proposed for delivery beyond 12 months.	*Suggested six-monthly release schedule.*

Where draft and final dates are stated for deliverables, this is to allow for external consultation. Where possible, deliverables will be finalised ahead of these dates.