AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

Core Information Components

Structured Microbiology Requests and Reports for Healthcare Associated Infections

Staphylococcus aureus bacteraemia (SAB)

Central line associated bloodstream infection (CLABSI)

Clostridium difficile infection (CDI)

Surgical site infections (SSI)

FINAL

January 2013

Document Control

Document Purpose

The purpose of this document is to support the definition of a national approach to surveillance of healthcare associated infections.

Document Identification

Document title	Core Information Components of Structured Microbiology Requests and Reports for Healthcare Associated Infections – final
Document date	23 January 2013
Trim	54674

Document Production

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Change History

Version	Comments	Date
0.1	First draft for Commission review	28 July 2010
1.0	Commission comments incorporated	4 August 2010
2.0	Draft to support national workshop	5 August 2010
3.0	Draft for consultation	17 August 2010
4.0	Fourth draft	21 December 2010
4.1	Fourth draft with clarifications	9 February 2011
5.0	Fifth draft with revisions from September workshop	October 2011
6.0	Final draft incorporating comments from D McKillop	February 2012
7.0	Final document incorporating findings from pilot of core information components for eSurveillance of HAI	January 2013

Contents

1 ABBREVIATIONS AND ACRONYMS

AAPP	Australian Association of Pathology Practices
ACSQHC	Australian Commission on Safety and Quality in Health Care
CDI	*Clostridium difficile* infection
CHRISP	Centre for Healthcare Related Infection Surveillance and Prevention
CLABSI	Central line associated bloodstream infection
GP	General Practitioner
HAI	Healthcare associated infections
HL7	Health Level 7
ICP	Infection control professional
ICU	Intensive Care Unit
NCOPP	National Coalition of Public Pathology
NEHTA	National eHealth Transition Authority
NPAAC	National Pathology Accreditation Advisory Council
RCPA	The Royal College of Pathologists of Australasia
SAB	*Staphylococcus aureus* bacteraemia
SSI	Surgical site infections
VICNISS	Victorian Infection Control Nosocomial Infection Surveillance

2 INTRODUCTION

2.1 Project overview

The Australian Commission on Safety and Quality in Health Care's healthcare associated infections (HAI) program builds on local and jurisdictional initiatives to develop a national approach to reducing HAI by identifying and addressing systemic problems and gaps, and ensuring comprehensive actions are undertaken in a nationally coordinated way by leaders and decision makers in both public and private health sectors.

The core information components of structured microbiology requests and reports for Healthcare Associated Infections (HAI) have been developed by the Australian Commission on Safety and Quality in Health Care (the Commission) as a best practice health information standard. This work is a building block for the Commission's national approach to surveillance of HAI.

The Commission has consulted with its national Healthcare Associated Infection Advisory Committee, peak bodies, health services, and expert professional groups, to define the clinical content of microbiology structured requests and reports for four (4) priority HAI within the Australian healthcare community, namely:

- Healthcare associated *Staphylococcus aureus* bacteraemia (SAB);
- Central line associated bloodstream infections (CLABSI);
- Healthcare associated *Clostridium difficile* infection (CDI); and,
- Surgical site infections (SSI).

2.2 Project purpose

This project defines the core information components for structured microbiology requests and reports for HAI, in particular SAB, CLABSI, CDI and SSI. These are summarised in the tables shown in section 4.

The core information components of structured microbiology requests and reports define the set of data elements **recommended** for implementation in any electronic system that creates and/or exchanges structured microbiology request and report information for HAI within Australia.

Core information components for structured microbiology are **recommended** and **not mandatory** for inclusion in all requests and reports. In circumstances where particular information components are not available when the request is made, these shall not be included in either the request or the subsequent report/s returned from the pathology provider.

This document presents the HAI structured microbiology request and report core components as a set of data elements for information exchange and, as such, they are independent of any particular platform, technology, exchange format or presentation format. The core information components are intended for implementation in the eHealth environment. They could be used on paper forms and in manual surveillance systems but the implementation would be burdensome in comparison with electronic requesting and reporting.

2.3 Consultation process

Development of the core information components for structured microbiology requests and reports for four HAIs was initiated by review and comparison of relevant bodies of work:

- NEHTA *Pathology Result Report Structured Document Template* v1.0 (2009);
- Royal College of Pathologists Australasia *The Pathology Request-Test-Report Cycle – Guidelines for Requesters and Pathology Providers*, March 2009;
- Jurisdictional surveillance guidelines, reporting elements, formats and definitions;
- Jurisdictional surveillance systems (e.g. Victorian Hospital-Acquired Infection Surveillance System (VICNISS)
- DATA SET SPECIFICATION *Surveillance of Healthcare Associated Infections: Staphylococcus aureus Bacteraemia & Clostridium difficile Infection,* V4.0 ;
- Standards Australia *AS 4700.2—2004, Implementation of Health Level Seven (HL7) Version 2.3.1; Part 2: Pathology orders and results*; and
- Royal College of Pathologists Australasia *Colorectal cancer structured reporting protocol* (1st Edition Feb 2010).

During 2010, the business process for the pathology Request – Test - Report cycle, and the draft core information components, were reviewed with a range of health professionals during interviews and at two workshops, and also reviewed during site visits against current microbiology practices.

Health professionals involved in the consultation undertaken during 2010 included: microbiologists, pathologists, infection control professionals, infectious diseases physicians, clinical advisors, microbiology laboratory managers, clinical directors, epidemiologists, terminology experts, and database managers. These health professionals were from organisations including: Royal College of Pathologists Australasia, Sullivan Nicolaides Pathology, NPS, Department of Health, South Australia, Western Australia Health, VICNISS Hospital Acquired Infection Surveillance Coordinating Centre, Tasmanian Department of Health and Human Services, ICPMR Laboratory, Hunter Area Pathology (HAPS), SEALS (Randwick), Sydney Hospital, Concord Hospital, NEHTA, and ACSQHC.

A further workshop was held in September 2011 with representatives from RCPA, NEHTA, NPAAC, VICNISS, CHRISP, NCOPP, AAPP, ACSQHC, HAI Advisory Committee and HL7 Australia to review questions raised during the mapping of the core information components to HL7 Version 2.4.

During 2012, the Commission engaged two health services to implement and evaluate the core information components: structured microbiology requests and reports for Healthcare Associated Infections: SAB, CDI, CLABSI and SSI, version 6.0.

The FINAL core information components for structured microbiology requests and reports for HAI were developed from this process. These are summarised in the tables shown in section 4.

2.4 Consensus statement

The Commission convened a national workshop in August 2010 on structured requests and reports for four priority Healthcare Associated Infections. A consensus statement was declared, as follows:

- ***Structured requesting and reporting for microbiology is expected to improve clinical management of Healthcare Associated Infections (HAI).***

- ***Structured microbiology requesting and reporting is considered a best practice element for clinical management and surveillance of healthcare associated infection.***

- ***The elements of best practice microbiology requesting and reporting are defined by expert practitioners, and should be taken up as clinical, laboratory and surveillance standards.***

Representatives of national peak bodies and expert professional groups attended this national workshop, as follows: Department of Health and Ageing, NPS, National Pathology Accreditation Advisory Council (NPAAC), The Royal College of Pathologists of Australia (RCPA), National Coalition of Public Pathology (NCOPP), Australian Association of Pathology Practices (AAPP), Australian Institute of Medical Scientists (AIMS), The Australian Society for Microbiology (ASM), National E-Health Transition Authority (NEHTA), Australian Infection Control Association (AICA), Australasian Society for Infectious Diseases (ASID), and the Commission's HAI Advisory Committee.

3 BACKGROUND

3.1 Healthcare Associated Infections

Healthcare associated infections (HAI) are those infections that are not present or incubating at the time of admission to a healthcare program or facility, but develop within a healthcare organisation, or are produced by micro-organisms acquired during admission.

HAI is responsible for a significant burden of iatrogenic morbidity and mortality. Each year in Australia there are about 200,000 HAIs1. HAIs cause patients pain and suffering, prolong hospital admissions and cause significant harm to patients. Some patients die as a result of HAIs, many of which are preventable. Prevention of HAI is the responsibility of all who care for patients, and can cost less than treating such infections.

The introduction of structured requests and reports will deliver benefits to all health care providers involved in the request-test-report cycle (see Figure 1) for clinical management of HAIs. Standardised structured requesting and reporting will ensure that HAI requests and reports are consistent in meaning and structure, reducing the need to follow up missing or incomplete information and improving communication between health care providers. Information is thus provided in a consistent and comprehensive format supporting decision making for further testing and treatment. Standardisation also facilitates the secondary use of data for HAI surveillance activities, quality management and research.

3.2 Request

A pathology request or order is defined as “A request for services for a specified patient.” [2] The request is generated by a healthcare provider or organisation to ask for a pathology investigation predicated on evidence provided with the request, which usually includes a defined specimen.

The need for Healthcare Associated Infection surveillance programs to also test environmental samples is acknowledged, however, non-patient samples are outside the scope of this project.

3.3 Report

A pathology report is defined[3] as: “… a set of one or more results and any associated interpretation usually generated in response to a request for Pathology. A report may include results previously reported and in some instances results from another request.”

The report is generated by a healthcare provider or organisation to transfer the results of a pathology investigation, in whole or in part, to another healthcare provider or organisation.

[1] Cruickshank M, Ferguson J, editors. Reducing Harm to Patients from Healthcare associated Infection: The Role of Surveillance: Australian Commission on Safety and Quality in Health Care, 2008.

[2] Standard Australia AS 4700.2 – 2004 AS 4700.2—2004, Implementation of Health Level Seven (HL7) Version 2.3.1 - Part 2: Pathology orders and results

[3] ibid

The primary recipient of the pathology report is the healthcare provider that requested the pathology investigation. Additional recipients may include:

- The referring clinician;
- Local Infection Control Professionals (ICPs);
- The patient's General Practitioner (GP).

3.4 Workflow

Microbiology testing will identify organisms related to an HAI, their antibiotic sensitivities and resistance, and inform treatment decisions. However, full definition of an HAI relies on numerous clinical factors, such as patient location, admission date and previous surgery, and cannot be declared solely from pathology results. Microbiology requests and reports for HAIs are received and dealt with in accordance with standard pathology handling and processes and remain a specific subset of general pathology requests and reports.

While the pathology request-test-report cycle can be defined (RCPA, 2009) there is considerable complexity and variability in the relationships and means of communication between requesting clinician and reporting pathologist. Using the project methodology outlined in section 2.7, the process workflow at Appendix 2 was developed to represent the request-test-report cycle relevant to HAIs. This does not attempt nor intend to impose or restrict the relationships and communications between health professionals for clinical management and surveillance of HAIs.

It is acknowledged that depending on when the specimen is collected in relation to the request workflow, collector and full specimen details may not be available at the time a request for microbiology testing is placed. Clinicians who can request pathology through a computerised order entry system should find that some information can be populated from the clinical information system if this is integrated with order entry. Clinical and administrative Information regarding the request should be transferred to the laboratory information system for inclusion in the report with the related test results.

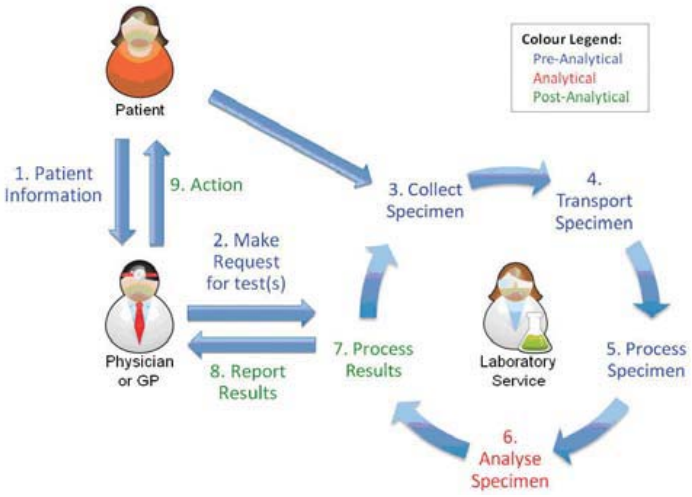


Figure 1 - The Pathology Request-Test-Report Cycle[4]

[4] p13 Diagram 2 'Environment Scan, The Pathology Industry' Version 1.0 Final – 30 June 2009 - NEHTA

4 CORE INFORMATION COMPONENTS

4.1 Overview

The core information components of structured microbiology requests and reports define the set of data elements **recommended** for implementation in any electronic system that creates and/or exchanges structured microbiology request and report information for HAI within Australia.

The core components and their use within the request and report structures are set out in Table 1.

Core information components for structured microbiology for HAI are **recommended** and **not mandatory** for inclusion in all requests and reports. In circumstances where particular information components are not available when the request is made, these shall not be included in either the request or the subsequent report/s returned from the pathology provider.

The findings from the pilot project enabled the Commission to review and revise the core information components: structured microbiology request and report for HAI. Table 1 now includes a column to demonstrate alignment with the data which is required under NPAAC (2012) *Requirements for Medical Pathology Services, 1st Edition – Final Draft.* Note that some data elements have been designated as optional in the table below.

Table 1 – Core Information Components: request and report for HAI

	DATA ELEMENT	REQUEST	REPORT	Required under NPAAC (2012)
Patient	Identifier	recommended	recommended	✓
	Name	recommended	recommended	✓
	Address	recommended	recommended	✓
	Electronic communication	optional	optional	X
	Date of birth	recommended	recommended	✓
	Sex	recommended	recommended	✓
	Indigenous status	optional	optional	X
	Admission date / time	recommended when SAB / CDI suspected	X	X
Health care	Identifier	recommended	recommended	X

	DATA ELEMENT	REQUEST	REPORT	Required under NPAAC (2012)
facility	Organisation name	recommended	recommended	✓
	Address	optional	optional	X
	Electronic communication	optional	optional	X
	Ward / clinical area	recommended	X	X
Principal health care provider	Identifier	optional	optional	X
	Name	optional	optional	X
	Electronic communication	optional	optional	X
Requester	Identifier	optional	optional	X
	Name	recommended	recommended	✓
	Address	optional	optional	X
	Electronic communication	optional	optional	X
	Signature	optional	X	X
Copy to	Identifier	optional	optional	X
	Name	optional	optional	X
	Address	optional	optional	X
	Electronic communication	optional	optional	X
Collector	Identifier	optional	X	Optional
	Name	optional	X	Optional
Specimen	Specimen type	recommended	recommended	✓
	Specimen qualifier	recommended	recommended	X
	Specimen anatomical site	recommended	recommended	✓
	Specimen identifier	optional	optional	X

	DATA ELEMENT	REQUEST	REPORT	Required under NPAAC (2012)
	Date / time specimen collected	optional	X	optional
	Date / time specimen received	X	recommended	✓
	Specimen characteristic	X	recommended	✓
	Specimen quality	X	optional	X
Request detail	Priority	optional	X	X
	Date / time requested	recommended	recommended	X
	Request test name	recommended	recommended	✓
	Clinical reason for request	recommended	recommended	✓
	Related problem	optional	optional	X
	Recent procedure	recommended SAB, SSI only	optional	X
	Site of recent procedure	recommended SAB, SSI only	optional	X
Reporting laboratory	Identifier	X	optional	X
	Organisation name	recommended	recommended	✓
	Electronic communication	X	optional	X
Result detail	Result test name	X	recommended	✓
	Testing method	X	recommended	✓
	Date / time result issued	X	recommended	✓
	Result status	X	recommended	X
	Result observable name	X	recommended	✓
	Result observable value	X	recommended	✓
	Reference range	X	optional	X

	DATA ELEMENT	REQUEST	REPORT	Required under NPAAC (2012)
	Abnormal flags	X	optional	X
	Clinical guideline note	X	optional	X
	Result note	X	recommended	✓
	Infection Alert	X	recommended	X
Authorising / approving pathologist	Identifier	X	optional	X
	Name	X	recommended	✓
	Electronic communication	X	optional	X
Referral Laboratory	Identifier	X	optional	X
	Name	X	recommended	✓
	Electronic communication	X	optional	X

For predefined demographics and contact information components used in the structured microbiology request and report, see Appendix 1.

4.2 Guide to presentation

Table 2 outlines the structured microbiology request for Healthcare Associated Infections (HAIs), and Table 3 outlines the structured microbiology report for HAIs.

The core components of the structured request and report for four HAIs (SAB, CLABSI, CDI, and SSI) are defined using the following columns:

Component: a high level section or group of data elements.

Item: an individual data element or group of elements. An item may be a single unit of data (e.g. "Admission Date"), or a set of data that has a standard structure (e.g. "Address").

Value(s): full range, or examples where shown, of potential values for the item. Value reference sets are provided where applicable.

Definition: formal detailed description of the item.

Reference: source or supporting document.

Notes: supporting information.

4.3 Core information components – structured microbiology request

Table 2 below outlines the structured microbiology request for HAIs, listing core components and data elements.

Table 2 – Core Information Components: structured microbiology request for HAI

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
PATIENT					
	Entity Identifier		The unique health identifier of the patient	1	The patient's health identifiers may include the patient's Medical Record Number as well as the Individual Healthcare Identifier (IHI).
	Person Name		The name details of an individual	1	The patient's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Address		The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.	1	The address of the patient, recorded in a structured format consistent with Australian standards of address recording. For the purpose of facilitating contact.
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
	Date of birth		The date of birth of the person.	1	Where the exact date of birth is not know, this may include an approximation, which includes only the year, or the year and month.
	Sex	1 Male 2 Female	Sex is a biological distinction between male and female.	1	

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
		3 Intersex or indeterminate 9 Not stated / inadequately described			
	Indigenous status	1 Aboriginal but not Torres Strait Islander origin 2 Torres Strait Islander but not Aboriginal origin 3 Both Aboriginal and Torres Strait Islander origin 4 Neither Aboriginal nor Torres Strait Islander origin 9 Not stated/inadequately described	Whether a person identifies as being of Aboriginal or Torres Strait Islander origin, as represented by a code.		METeOR 291036 Identifier 291036
	Date / Time of Admission		Date / time at which an admitted patient commences an episode of care		When SAB / CDI suspected The date / time should be the most immediate admission date / time PRIOR to the specimen collection date. For the purpose of informing laboratory testing.
HEALTH CARE FACILITY			Physical location of the patient at the time the request was made		
	Entity Identifier		The unique organisation identifier of the	1	This should include the Healthcare Provider

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
			referring organisation.		Identifier of the organisation (HPI-O) and the locally generated identifier where practicable.
	Organisation Name		The name by which the organisation is known or called.	1	
	Address		The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.	1	The address of the health care facility, recorded in a structured format consistent with Australian standards of address recording. For the purpose of facilitating contact. There are many small health care facilities, and facilities with similar names - inclusion of this component will eliminate time consuming manual searches.
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact. There are many small health care facilities, and facilities with similar names - inclusion of this component will eliminate time consuming manual searches.
	Ward / clinical area	Classification to be defined. Values to include: o Intensive Care Unit o Emergency Department	The organisational unit or organisational arrangement dedicated to the treatment and care of patients in a healthcare setting.	7	This is the patient's location at the time the pathology request was made. For the purpose of informing laboratory testing.
PRINCIPAL HEALTH CARE PROVIDER			Clinician responsible for providing care to the subject of care		This is the consultant or general practitioner who is the principal clinician for contact e.g. when requesting clinician is off duty, to ensure that clinical information is

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
					communicated effectively.
	Entity Identifier		The unique identifier of the principal health care provider	1	This should be the Healthcare Provider Identifier – Individual.
	Person Name		The name details of an individual	1	The provider's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
REQUESTER			Clinician ordering pathology test/s		For example, resident, general practitioner, specialist.
	Entity Identifier		The unique identifier of the clinician ordering pathology test/s	1	This should be the Healthcare Provider Identifier – Individual.
	Person Name		The name details of an individual	1	The requester's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Address		The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.	1	The address of the requester, recorded in a structured format consistent with Australian standards of address recording. For the purpose of facilitating contact.
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
	Signature				
COPY TO					
	Entity Identifier		The unique identifier of an individual	1	This should be the Healthcare Provider Identifier – Individual, and the Healthcare Provider Identifier of their organisation (HPI-O) where practicable.

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
	Person Name		The name details of an individual	1	The "copy to" person's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Address		The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.	1	The address of the "copy to" person, recorded in a structured format consistent with Australian standards of address recording. For the purpose of facilitating contact.
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
COLLECTOR			Individual who collects the specimen		Depending on when the specimen is collected in relation to the request workflow, collector details may not be available at the time a request for microbiology testing is placed.
	Entity Identifier		The unique identifier of an individual	1	Unique Identifier OR Healthcare Provider Identifier – Individual (where practicable).
	Person Name		The name details of an individual	1	The collector's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
SPECIMEN			Details of the specimen provided for pathology testing		Depending on when the specimen is collected in relation to the request workflow, full specimen details may not be available at the time a request for microbiology testing is placed.
	Specimen type	Classification to be defined (SNOMED CT AU). Values to include:	The categorisation of the sample collected and/or tested in a pathology investigation in relation to the Subject of Care.	2	

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
		o Blood culture o Wound swab			
	Specimen qualifier	Classification to be defined. (SNOMED CT AU) Values to include: o Neonatal o Intra-operative o Specimen obtained from Central line o MRO screen	Information that defines characteristics of the specimen which need to be taken into consideration when analysing the specimen or interpreting the results.	2	
	Specimen anatomical site	Classification to be defined (SNOMED CT AU) Values to include: o Coronary artery graft o Surface region of forearm	The categorisation of the anatomical site from which a specimen was obtained from an individual for pathology investigation.	2	
	Specimen identifier		Specimen identifier unique within a laboratory	7	Best practice is to allocate a unique specimen identifier for each container, although some may use a unique specimen identifier for a number of containers.
	Date/time specimen collected		The date and time at which the specimen was collected from the person	7	
REQUEST DETAIL					
	Priority	Values as defined in Health Level 7 (HL7) Messaging Standard v2.4 Section 4.3.6 (Table 00027)	The urgency associated with the timing need of the result report as determined by the requester.	2	

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
		o S = Stat o A = ASAP o R = Routine o P = Pre-op o T = Timing Critical			
	Date/Time requested		Date and time that the request was made	2	
	Request Test name	Classification to be defined. Values to include: o Clostridium difficile toxin o Culture and susceptibilities o Gram Stain microscopy	The term representing the requested pathology investigation. The term may represent a single analyte or a panel of grouped tests to be performed.	2	
	Clinical Reason for request	Free text For example: o Suspicion of Clostridium difficile o Query Staphylococcus aureus bacteraemia o Septic wound o Treatment monitoring o Antibiotic therapy	Relevant clinical information pertaining to why the request for a pathology investigation was made.	2	Include the most relevant clinical reason for request in this clinical notes field. For the purposes of informing laboratory testing for screening, clinical management or surveillance of HAIs.
	Related problem	Classification to be defined. Values to include: o Prosthesis presence o Skin graft o Central line presence o Peripheral line presence	A description of the problem pertaining to the Subject of Care which is deemed clinically relevant to the generation of the pathology investigation.	2	Include one or multiple related problems or diagnoses. For the purpose of informing laboratory testing for screening, clinical management or surveillance of HAIs.

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
	Recent procedure	Classification to be defined. (SNOMED CT AU) Values to include: o Graft o Fitting prosthetic	The categorisation of recent procedures related to pathology investigation.		Where requester is using electronic order entry and has access to the Clinical Information System, this data should be automatically generated.
	Site of recent procedure	Classification to be defined. (SNOMED CT AU) Values to include: o Coronary artery o Upper limb	The categorisation of the anatomical site of recent procedures related to pathology investigation.		Where requester is using electronic order entry and has access to the Clinical Information System, this data should be automatically generated.
REPORTING LABORATORY			Pathology laboratory that is responsible for providing the results report.		
	Organisation Name	.	The name by which the organisation is known or called.	1	

4.4 Core components – structured microbiology report

Table 3 below outlines the structured microbiology report for HAIs, listing core components and data elements.

Table 3 – Core Information Components: structured microbiology report for HAI

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
PATIENT			**Subject of care**		
	Entity Identifier		The unique health identifier of the patient	1	The patient's health identifiers may include the patient's Medical Record Number as well as the Individual Healthcare Identifier (IHI).
	Person Name		The name details of an individual	1	The patient's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Address		The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.	1	The address of the patient, recorded in a structured format consistent with Australian standards of address recording. For the purpose of facilitating contact.
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
	Date of birth		The date of birth of the person.	1	Where the exact date of birth is not know, this may include an approximation, which includes only the year, or the year and month.
	Sex	1 Male 2 Female 3 Intersex or indeterminate 9 Not stated /	Sex is a biological distinction between male and female.	1	

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
		inadequately described			
	Indigenous status	1 Aboriginal but not Torres Strait Islander origin 2 Torres Strait Islander but not Aboriginal origin 3 Both Aboriginal and Torres Strait Islander origin 4 Neither Aboriginal nor Torres Strait Islander origin 9 Not stated/inadequately described	Whether a person identifies as being of Aboriginal or Torres Strait Islander origin, as represented by a code.		METeOR Identifier 291036 291036
HEALTH CARE FACILITY			Physical location of the patient at the time the request was made		
	Entity Identifier		The unique organisation identifier of the referring organisation.	1	This should include the Healthcare Provider Identifier of the organisation (HPI-O) and the locally generated identifier where practicable.
	Organisation Name		The name by which the organisation is known or called.	1	
	Address		The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.	1	The address of the health care facility, recorded in a structured format consistent with Australian standards of address recording. For the purpose of facilitating contact. There are many small health care facilities, and facilities with similar names - inclusion of this component will eliminate time consuming manual searches.

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact. There are many small health care facilities, and facilities with similar names - inclusion of this component will eliminate time consuming manual searches.
PRINCIPAL HEALTH CARE PROVIDER			Physician responsible for providing care to the subject of care		This is the consultant or general practitioner who is the principal clinician for contact e.g. when the requesting clinician is off duty, to ensure that clinical information is communicated effectively.
	Entity Identifier		The unique identifier of the principal health care provider	1	This should be the Healthcare Provider Identifier – Individual.
	Person Name		The name details of an individual	1	The provider's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
REQUESTER			Clinician ordering pathology test/s		For example, resident, general practitioner, specialist
	Entity Identifier		The unique identifier of the clinician ordering pathology test/s	1	This should be the Healthcare Provider Identifier – Individual.
	Person Name		The name details of an individual	1	The requester's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Address		The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.	1	The address of the requester, recorded in a structured format consistent with Australian standards of address recording. For the purpose of facilitating contact.
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
REPORTING LABORATORY			Pathology laboratory that is responsible for providing the results report.		
	Entity Identifier		The unique organisation identifier of the reporting organisation.	1	This should include the Healthcare Provider Identifier of the organisation (HPI-O) and the locally generated identifier where practicable.
	Organisation Name	.	The name by which the organisation is known or called.	1	
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
COPY TO					
	Entity Identifier		The unique identifier of an individual	1	This should be the Healthcare Provider Identifier – Individual, and the Healthcare Provider Identifier of their organisation (HPI-O) where practicable.
	Person Name		The name details of an individual	1	The “copy to” person’s name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Address		The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.	1	The address of the “copy to” person, recorded in a structured format consistent with Australian standards of address recording. For the purpose of facilitating contact.
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
SPECIMEN			Details of the specimen provided for pathology testing		
	Specimen type	Classification to be defined (SNOMED CT AU).	The categorisation of the sample collected and/or tested in a pathology investigation in relation to the Subject of Care.	2	

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
		Values to include: o Blood culture o Wound swab			
	Specimen qualifier	Classification to be defined.	Information that defines characteristics of the specimen which need to be taken into consideration when analysing the specimen or interpreting the results.	2	
	Specimen anatomical site	Classification to be defined (SNOMED CT AU). Values to include: o Coronary artery graft o Surface region of forearm	The categorisation of the anatomical site from which a specimen was obtained from an individual for pathology investigation.	2	
	Specimen identifier		Specimen identifier unique within a laboratory	7	
	Date/time specimen received		The date and time the specimen was received by the performing laboratory	2	
	Specimen characteristic	For example, saliva found in initial morphological analysis. Values to include: o Purulent material o Blood stained	The clinical findings on initial morphological analysis of a specimen (by a reporting Pathologist or Laboratory Worker) identifying artefacts or characteristics that may impact the result.	2	Best practice is to report specimen unsuitability against specimen and affected tests.
	Specimen quality	For example: o Specimen unsatisfactory for evaluation	An assessment of the 'suitability for testing' of the specimen collected for analysis.	2	Best practice is to report specimen unsuitability against specimen and affected tests.
REQUEST DETAIL			Details of the request		

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
	DateTime requested		Date and time that the request was made	2	
	Request Test name	Classification to be defined. Values to include: o Clostridium difficile toxin o Culture and susceptibilities o Gram Stain microscopy	The term representing the requested pathology investigation. The term may represent a single analyte or a panel of grouped tests to be performed.	2	
	Clinical Reason for request	Free text For example: o Suspicion of Clostridium difficile o Query Staphylococcus aureus bacteraemia o Septic wound o Treatment monitoring o Antibiotic therapy	Relevant clinical information pertaining to why the request for a pathology investigation was made.	2	
	Related Problem	Classification to be defined. Values to include: o Prosthesis presence o Skin graft o Central line presence o Peripheral line presence	A description of the problem pertaining to the Subject of Care which is deemed clinically relevant to the generation of the pathology investigation.	2	
	Recent procedure	Classification to be defined (SNOMED CT AU).	The categorisation of recent procedures related to pathology investigation.		

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
		Values to include: o Graft o Fitting prosthetic			
	Site of recent procedure	Classification to be defined. (SNOMED CT AU) Values to include: o Coronary artery o Upper limb	The categorisation of the anatomical site of recent procedures related to pathology investigation.		
RESULT DETAIL			Details of the result		
	Result Test name	Classification to be defined. (SNOMED CT AU) Values to include: o Clostridium difficile toxin o Culture and susceptibilities o Gram Stain microscopy	The term representing the pathology investigation/s completed by the pathologist. The term may represent a single analyte or a panel of grouped tests to be performed.	2	Include code for each individual test name.
	Testing Method	Classification to be defined. (SNOMED CT AU) Values to include: o Nucleic Acid Amplification o MIC susceptibility o Gram stain method o Latex agglutination	A description of the specific analytical principle or method used by the laboratory to perform the analyses and produce the result for the reported observation	2	Include code for each individual test method
	Date/Time Result		The date or date and time that the result was	2	

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
	Issued		issued for the current Result Status.		
	Result status	Values as defined in HL7 v2.4 Table 0123 e.g. o F - Final results o C - Correction to results	The status of the test result as indicated by the performing pathologist, detailing the stage at which the pathology testing has reached.	2	
	Result observable name	Classification to be defined (LOINC). Values to include: 1. Microscopic observation (Gram stain) 2. Leucocytes 3. Erythrocytes 4. Epithelial cells 5. Micro organism identified 6. Bacterial susceptibility panel	The term given to a result element of a pathology test.	2	
	Result observable value	For example: 1. 'Detected / not detected' 2. Single numeric value for 'Days at which organism was detected' 3. 'Positive / Negative' for	The pathology test result observable value component.	2	

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
		'Culture Gram status' 4. Numeric values for 'Quantity of positive blood cultures in a set' 5. Text description for 'Macroscopic appearance' 6. 'Susceptible / resistant' to antibiotic			
	Reference range	For example: o >4mmol/L o 30 – 58 g/L	The upper and lower reference values for a pathology observable test result as determined from an appropriate reference population.	2	
	Abnormal flags		Indicates the degree of diagnostic significance associated with an unexpected pathology test result based on all the available clinical information (including but not limited to the reference range).	2	
	Clinical guideline note		Extra comments that may provide further context to the reference range or provide clinical guidelines when no single reference range is appropriate	2	
	Result note	For example: o Notifiable disease o Reportable disease	Interpretative comments on the pathology observable result (provided by the reporting pathologist.)	2	
	Infection Alert	Classification to be defined. Values to include HAI specific requirements for:	Identifies that results indicate that supplementary action is required.		

COMPONENT	ITEM	VALUE(S)	DEFINITION	REF.	NOTES
		o Notify ICP o MRSA /MRO result			
AUTHORISING / APPROVING PATHOLOGIST			Individual responsible for authorising release and distribution of the report.		
	Entity Identifier		Healthcare Provider Identifier - Individual	1	
	Person Name		The name details of an individual	1	The authorizing pathologist's name, structured, and consistent with Australian standards of naming (e.g. family name and first name etc).
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.
REFERRAL LABORATORY			Pathology laboratory that is responsible for referring to the reporting laboratory.		
	Entity Identifier		Healthcare Provider Identifier - Individual	1	
	Organisation Name	.	The name by which the organisation is known or called.	1	Organisation Name
	Electronic communication		Data elements used to capture and store the electronic communication details of entities.	1	For the purpose of facilitating contact.

APPENDIX 1 – Predefined demographic and contact information components

These components are frequently used, predefined sets of information used in both the structured request and structured report.

COMPONENT	DATA ELEMENT	VALUE(S)	DEFINITION	REFERENCE
PERSON NAME			**The name details of an individual**	
	Name title	e.g. o Mr o Ms o Prof	An honorific form of address commencing a name.	1
	Family name	Text	The name a person has in common with other members of his/her family, as distinguished from her/his first given name.	1
	Given name	Text	The person's identifying names within the family group or by which the person is uniquely socially identified.	1

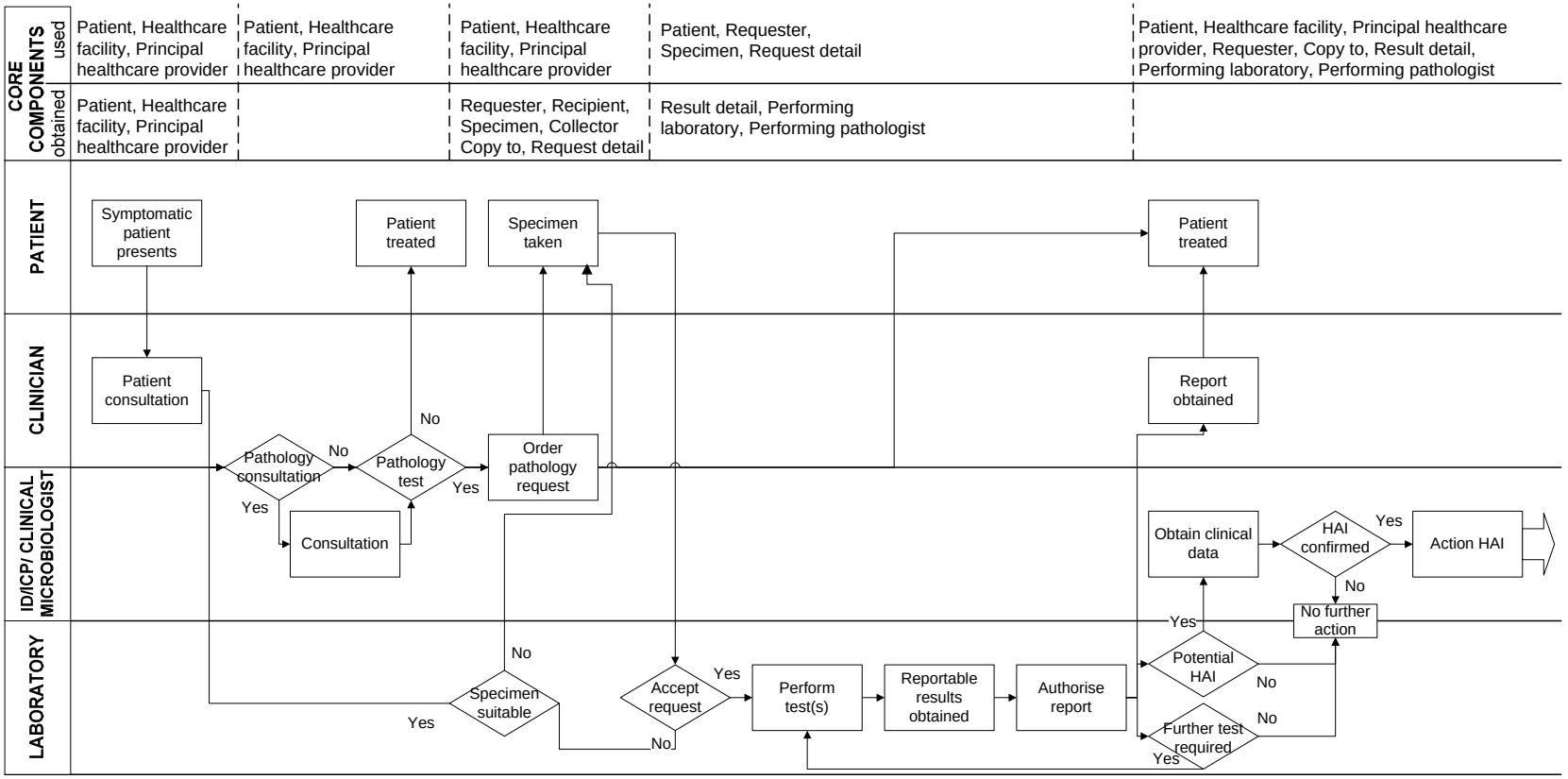
COMPONENT	DATA ELEMENT	VALUE(S)	DEFINITION	REFERENCE
ADDRESS			**The description of a location where an entity (person or organisation) is located or can be otherwise reached or found.**	
	Address Line	Text	A composite of one or more standard address components that describes a low level of geographical/physical description of a location that, used in conjunction with the other high-level address components, forms a complete geographical/physical address.	1
	Suburb/Town/Locality	Text	The full name of the locality contained within the specific address of a person, as represented by text.	1
	State/Territory	1 New South Wales 2 Victoria 3 Queensland 4 South Australia 5 Western Australia 6 Tasmania	An identifier of the Australian State or Territory.	1

COMPONENT	DATA ELEMENT	VALUE(S)	DEFINITION	REFERENCE
		7 Northern Territory 8 Australian Capital Territory 9 Other territories (Cocos (Keeling) Islands, Christmas Island and Jervis Bay Territory)		
	Postcode	Text	The numeric descriptor for a postal delivery area (as defined by Australia Post), aligned with locality, suburb or place for the address.	1

COMPONENT	DATA ELEMENT	VALUE(S)	DEFINITION	REFERENCE
ELECTRONIC COMMUNICATION			**Data elements used to capture and store the electronic communication details of entities**	
	Communication medium	1 Telephone (excluding mobile telephone) 2 Mobile (cellular) telephone 3 Facsimile machine 4 Pager 5 Email 6 URL 8 Other	Indicates the type of electronic communication medium.	1
	Communication usage code	1 Business 2 Personal 3 Both business and personal use	A code representing the manner of use that is applied to an electronic communication medium.	1
	Communication address	Text	A unique combination of characters used as input to electronic telecommunication equipment for the purpose of contacting an entity.	1

COMPONENT	DATA ELEMENT	VALUE(S)	DEFINITION	REFERENCE
ENTITY IDENTIFIER			**Identifiers to uniquely identify a person, organisation or other participant entity.**	
	Identifier Designation	Text	A number or code assigned to a participant by an organisation, establishment or agency in order to uniquely identify that participant.	1
	Identifier Geographic Area	1 Local Identifier 2 Area/Region/District Identifier 3 State or Territory Identifier 4 National Identifier	A code representing a type of geographical or administrative area within which the individual or organisation identifier is applicable.	1
	Identifier Issuer	e.g. o Medicare Australia o Royal Melbourne Hospital o Australian Taxation Office	The organisation that allocates an identifier which uniquely identifies an individual or organisation.	1
	Identifier Type	e.g. o Medicare Card Number o Medical Record Number o Australian Business Number (ABN) o License Number	The name/label of an identifier that is allocated by the issuer, which indicates the type of identifier.	1

APPENDIX 2 – Workflow diagram



Notes
1. Healthcare facilities without ID/ICP/Microbiologist services may have assigned tasks performed by Clinician.
2. Obtaining and using clinical data (for example for HAI confirmation) is included for completeness and does not form part of the proposed structured documentation.

APPENDIX 3 – References

1 NEHTA *Participation Data Specification Version 1.0*, 30/06/2009

2 NEHTA *Pathology Result Report Structured Document Template Version 1.0*, 30/06/2009

3 ACSQHC *HAI structured requesting and reporting background pape*r, May 2010 final

4 NEHTA *Data Specifications and Structured Document Templates - Guide for Use Version 1.0,* 7/08/2009 Final

5 NEHTA *Environment Scan - The Pathology Industry Version 1.0* Final, 30 June 2009

6 NEHTA *Core Information Components Discharge Summary Release 1.0*, July 2009

7 ACSQHC *Draft data set specification - Surveillance of Healthcare Associated Infections: Staphylococcus aureus Bacteraemia & Clostridium difficile Infection' Version 3.0,* September 2010

8 RCPA *The Pathology Request-Test-Report Cycle – Guidelines for Requesters and Pathology Providers,* March 2009

9 Standards Australia *AS 4700.2—2004, Implementation of Health Level Seven (HL7) Version 2.3.1 - Part 2: Pathology orders and results*

10 National Pathology Accreditation Advisory Council (NPAAC) (2012) *Requirements for Medical Pathology Services, 1st Edition – Final Draft* (Accessed 2 January 2012 at http://www.health.gov.au/internet/main/publishing.nsf/Content/health-npaac-publications-draft.htm)