

From little data, big data grows

Kylynn Loi, CSIRO

Katrina Otto, Train IT Medical

CSIRO: Australia's National Science Agency

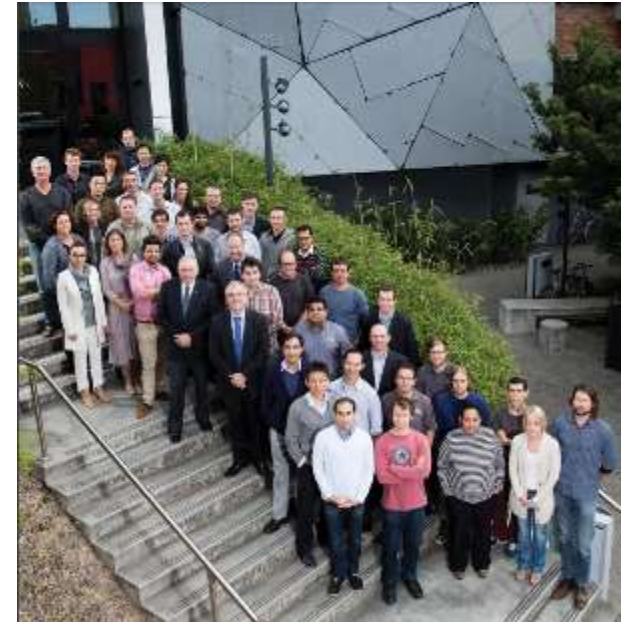
- Over 5000 Research Scientists
- 58 Sites globally, Research activities in 80 Countries
- \$1 Billion Annual budget
- Top 1% Of Global research agencies
- Hosts Boeing's largest R&D facility outside of the US
- Run NASA's spacecraft tracking facilities in Australia
- Invented WiFi, used in five billion devices globally.



The Australian e-Health Research Centre

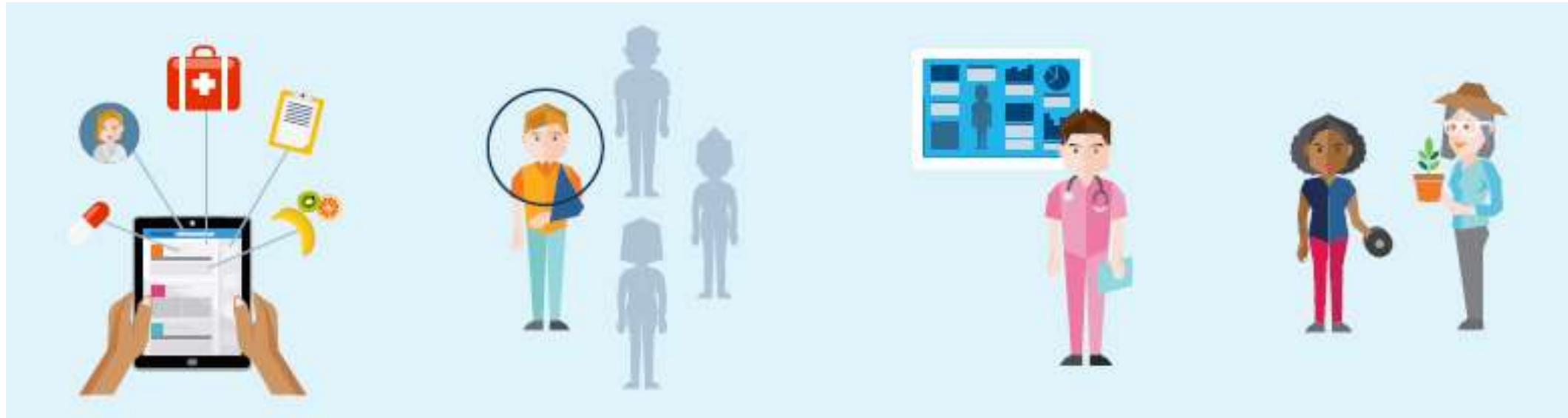
CSIRO's National Digital Health Program

- Australia's first and largest e-health research hub, opening in 2003
 - Joint venture with Queensland Health + additional investment from CSIRO to grow
 - 100 scientists and engineers and 30 students in Brisbane, Perth, Sydney and Melbourne
- We provide an evidence base for the digital transformation of healthcare
- Success built on our partnerships with government, clinicians, industry, SMEs and more



THE AUSTRALIAN
E•HEALTH
RESEARCH CENTRE

Our vision for Australia's future health



Managing health
and wellbeing

Precision health
solutions

Holistic and
predictive approach

Improving quality of
life over a lifetime

Our Digital Health Research Program



BIOMEDICAL INFORMATICS

Biostatistics, imaging and genomics
based -clinical workflows

How: Leveraging operational &
clinical data through analytics,
modelling, decision support &
automation



HEALTH INFORMATICS

Improving health system
performance & productivity from
electronic health data

How: Meaningful data
interoperability and analysis for
decision support, analytics,
modelling and reporting



HEALTH SERVICES

Improving access to services &
management of chronic diseases

How: Service delivery models
utilising telehealth, mobile health &
remote monitoring

OUR VISION

'To develop and deploy leading edge digital innovations in the health care domain to improve service delivery in Australian healthcare systems, support clinical research, generate commercialisation revenue and increase the pool of world-class digital health expertise in Australia.'

A digital powered health system



Remote delivery of
systems



Brain imaging to
diagnose and manage
Alzheimer's Disease



RAPT -
software to reduce
hospital waiting times



CareHub - remote
visits through your
smartphone



CareConnect - enabling
health records to talk
the same language

Primary Care Data Quality Foundations Programme

Why quality matters

- High-quality health records support good patient care
- High-quality health records facilitate:
 - safe clinical decision making
 - effective communication between health professionals
 - trusting partnerships with patients
 - coordination and continuity of care
 - Population Health
 - Research

QUALITY 

Why this Collaboration?

There are no agreed common data definitions for primary care within Australia

- RACGP - Standards for General Practice, OPTIMUS project
- Australian Digital Health Agency – My Health Record (Event Summary and Shared Health Summary)
- Federal and State Health Departments, PHNs
 - data requirements to support NKPIs
 - Local integrated care programs
- Software vendors
 - different labels for fields
 - Different terminologies
- Multiple data extract providers- different approaches
- Overlapping data requirements
- An opportunity for harmonisation and alignment



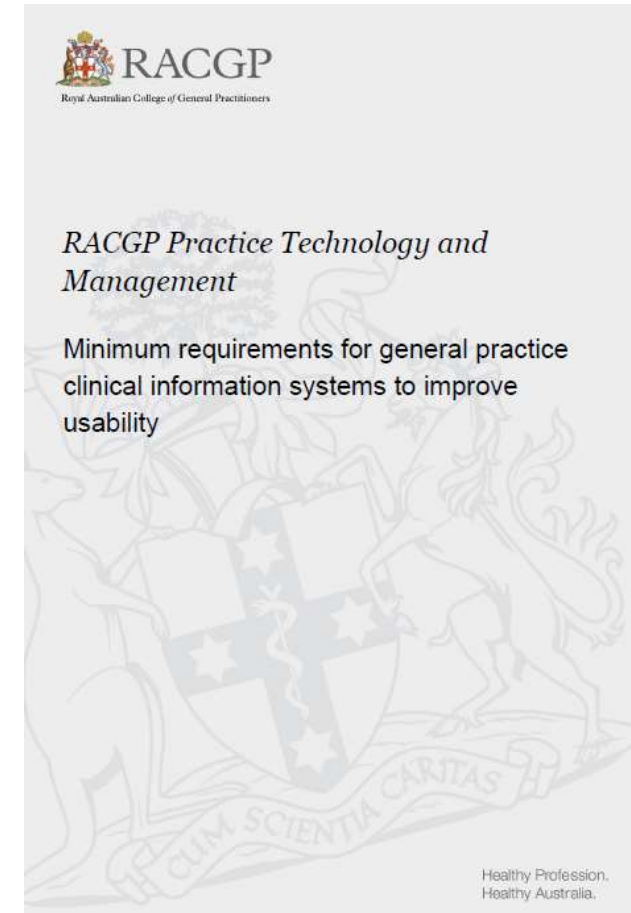
Recommendations in RACGP Minimum requirements for clinical information systems

2018 RACGP project conducted to identify minimum requirements for clinical information systems and included recommendations related to the following...

1. Terminology and coding
2. Information exchange
3. Secure electronic communications
4. Data quality

The document explains that under the *Medical Board of Australia – a code of conduct for doctors in Australia*, **maintaining clear and accurate medical records is essential for the continuing good care of patients.**

Records must be in a form that can be understood by other healthcare providers and should facilitate continuity of care.



Aligning with RACGP Programs and Initiatives

These projects are complementary to and support a number of RACGP Standards, Programs and Initiatives.

- RACGP Practice Standards for accreditation
- RACGP Practice Technology and Management Committee
 - Min requirements for practice Software
- Primary Care Collaboratives joint Project with NACCHO
- RACGP Quality Initiatives

- The projects leveraged previous work undertaken by RACGP including the recommended standards for practice records, Optimus etc

Data... what do we know?

- Somewhere between 60-80% of clinical data is:
 - Free text entries
 - Narrative, progress notes, aide memoirs, practice management
 - Proxy terms
 - MBS item numbers, drugs
 - Not what the data expects
 - Dx in Px, Px in Dx, Rx in Hx
 - Missingness
 - Outdated, not curated

What problems are we are trying to solve...

Issues with data quality?

- According to the *General Practice Insights Report 2016/2017*:
 - **REASON FOR ENCOUNTER**: 84.5% had at least one reason recorded and **15.5% had no data entered** in the RFE field
 - **DIAGNOSIS**: 29.4% of patient records had at least one diagnosis recorded but **70.6% had no data entered** in the diagnosis field
 - **REASON FOR PRESCRIPTION**: 11.9% had at least one reason for prescription but **88.1% had no data entered** in RFP field
 - **In many cases data is free-text making it much harder to analyse**

12 Months on - Journey Achievements

The Data Model

- Common Core - **enter once, use often**
- Practice to Practice use case
- Reusable components for additional use cases.

Data Dictionary

- Summary cheat sheet
- Terminology Value Sets, Bindings

FHIR Implementation Guide

- AU Base - progress
- Worked examples
- Connectathons
- Reusable components for Phase 2

Education materials

- Slide decks
- Videos
- How-to guides

Supporting materials

- Search strategies
- Mapping and migration
- Dealing with terminology content
- Data inputs

Analytics

- Using SNOMED encoded data
- Other reporting requirements
- Starter sets, inferring Dx
- Data outputs



Value- Single Provision Multiple Use

- Reduce effort for practices, clinicians and software Industry.
- Enable
 - exchange between clinical systems;
 - interrogate data sets using standardised queries, resulting in consistent data results;
 - safely and accurately extract, aggregate and analyse primary care data (assuming appropriate privacy, consent and authorisation);
 - trigger standardised knowledge related activities such as common decision support tools across systems, rather than a unique one per project or implementation;
 - provide a ready-made library of information models that can fast-track the development of new clinical systems, applications or projects.

Partnering & Teamwork



KATRINA OTTO
Managing Director – Train IT Medical
Bachelor of Adult Education (BEd), Dip Bus (Health),
Cert IV Training & Assessment

 katrina@trainitmedical.com.au

 0424580286

Margaret Windsor
Registered Nurse, Cert IV Training & Assessment



Sue Cummins
BA, Dip IT, Cert IV Training & Assessment



Jason Hahne,
RN, BN, MBA, MPH,
AFACHSM, MPHAA,
PGDipAdv Nurs, Cert IV
Training & Assessment

Train IT Medical Project Training Team

VISION	SKILLS	INCENTIVES	RESOURCES	IMPLEMENTATION
<ul style="list-style-type: none"> ▪ Person-centred care ▪ Population Health ▪ Standardised quality data ▪ Multi-disciplinary team care ▪ Sustainable practice <ul style="list-style-type: none"> - Understand current capacity of practice - Know your business 	<ul style="list-style-type: none"> ▪ Leadership and teamwork ▪ Profile/skillset of practice staff ▪ Quality & Safety ▪ Essentials for improving data quality ▪ Clinical Software/tools for improving quality 	<ul style="list-style-type: none"> ▪ Patient outcomes ▪ Practice Incentive Payments <ul style="list-style-type: none"> - ePIP - PIPQI ▪ Digital Future <ul style="list-style-type: none"> - My Health Record - Health Care Homes ▪ Minimisation of medico-legal risk ▪ Meeting new QI standards - Accreditation ▪ Time and efficiency improvements 	<ul style="list-style-type: none"> ▪ Peak Bodies / PHN Trainer the Trainer Packs ▪ Videos: <ul style="list-style-type: none"> Recordings of data entry/collecting of minimum data set for: <ul style="list-style-type: none"> - Best Practice - Communicare - MedicalDirector - Case studies ▪ Summary Sheets: <ul style="list-style-type: none"> - Best Practice - Communicare - MedicalDirector ▪ Learning Workbook: <ul style="list-style-type: none"> - Best Practice - Communicare - MedicalDirector - Interactive activities - Case studies 	<ul style="list-style-type: none"> ▪ Action Plan ▪ Communication Plan with staff ▪ Embed and monitor ▪ Build the team

824 Practice Managers



Across Australia



Practice Manager Engagement

Engagement with 484
Practice Managers and
medical admin support
staff at training events
delivered by Katrina
Otto 1/1/19 - 30/6/19

- 18 onsite practice visits
- 6 Webinars
- 13 individual online sessions
- 29 event presentations

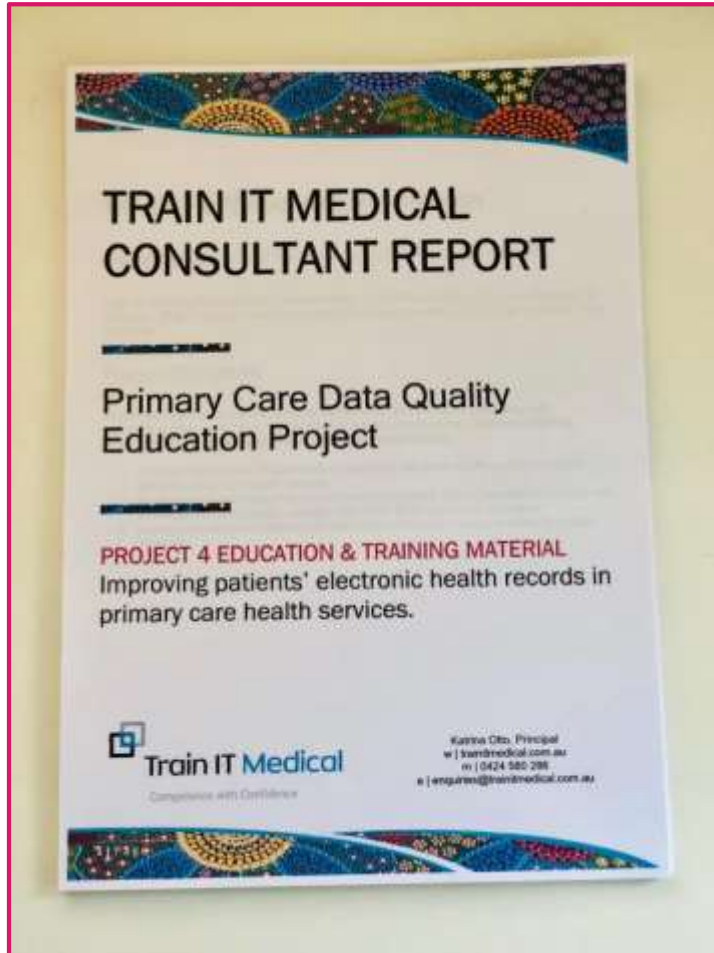
Engagement with 340
Practice Managers and
medical admin support
staff at training events
delivered by Sue
Cummins 1/1/19 -
30/6/19

- 42 onsite practice visits
- 10 individual online sessions
- 8 event presentations

60

onsite visits in 6 months

Read the project detail



DOWNLOAD:

<https://trainitmedical.com.au/about-us/case-studies>

Education for quality

'Core Common Data Set'

1. Aboriginal and/or Torres Strait Islander status
2. Allergies and adverse reactions
3. Medications & Reason for Medication
4. Diagnosis
5. Immunisations

Free training package for you!

Training Package:

Train the Trainer/Peak Bodies Presentation Slides

Webinar Presentation Slides (1 hour)

Face to Face Presentation Slides (1 hour)

Teamwork Practice Questionnaire
Draft Quality Improvement Activity (PDSA)
eg raise awareness of clinical coding

1-page Summary Guides

- Best Practice
- MedicalDirector
- Communicare

Training Workbooks

- Best Practice
- MedicalDirector
- Communicare

Videos

- Best Practice
- MedicalDirector
- Communicare

Multi-modal options

designed with you, designed for you!



RESOURCES

112 Training Resources



BP PREMIER
Module 1 - Extra page of learning links - Adding Aboriginal and Torres Strait Islander status - BP PREMIER - Train IT Medical .pdf
Module 1 - Key reasons to code Aboriginal and Torres Strait Islander status - BP PREMIER - Train IT Medical .JPG
Module 1 - Summary Sheet - Adding Aboriginal and Torres Strait Islander status - BP PREMIER - Train IT Medical .docx
Module 1 - Video - Adding Aboriginal and Torres Strait Islander status - BP PREMIER - Train IT Medical .mp4
Module 1 - Video Script - Adding Aboriginal and Torres Strait Islander Status - BP PREMIER - Train IT Medical .docx
Module 2 - Key reasons to code Allergies and Adverse Reactions - BP PREMIER - Train IT Medical .JPG
Module 2 - Summary Sheet - Allergies and Adverse Reactions - BP PREMIER - Train IT Medical .docx
Module 2 - Video - Allergies and Adverse Reactions - BP PREMIER - Train IT Medical .mp4
Module 2 - Video Script - Allergies and Adverse Reactions - BP PREMIER - Train IT Medical .docx
Module 3 - Key reasons to code diagnoses - BP PREMIER - Train IT Medical .JPG
Module 3 - Summary Sheet - Diagnosis Coding - BP PREMIER - Train IT Medical .docx
Module 3 - Video - Diagnosis coding - BP PREMIER - Train IT Medical .mp4
Module 3 - Video Script - Diagnosis coding - BP PREMIER - Train IT Medical .docx
Module 4 - Key reasons to code a Medication and Reason for Medication - BP PREMIER - Train IT Medical .JPG
Module 4 - Summary Sheet - Medication and Reason for Medication - BP PREMIER - Train IT Medical .docx
Module 4 - Video - Medication and Reason for Medication - BP PREMIER - Train IT Medical .mp4
Module 4 - Video Script - Medication and Reason for Medication - BP PREMIER - Train IT Medical .docx
Module 5 - Key reasons why adding an immunisation is important - BP PREMIER - Train IT Medical .JPG
Module 5 - Summary Sheet - Adding an Immunisation - BP PREMIER - Train IT Medical .docx
Module 5 - Video - Adding an Immunisation - BP PREMIER - Train IT Medical .mp4
Module 5 - Video script - Adding an Immunisation - BP PREMIER - Train IT Medical .docx
Summary Sheet - Configuration Options - BP PREMIER - Train IT Medical .docx
Summary Sheet - Reason for visit - BP PREMIER - Train IT Medical .docx
Bp Premier Learning Workbook - Standardised data coding - unbranded - Train IT Medical v2.docx

Stored for you on 'Confluence' by CSIRO
<https://confluence.csiro.au>

Quality Improvement Activity Resources and Samples

Quality Improvement (PDSA sample 1 - Improving recording of Aboriginal and Torres Strait Islander status - Train IT Medical - v02.docx

Quality Improvement (PDSA) sample 2 - Clinical Coding - Train IT Medical - v02.docx

Quality Improvement (PDSA) sample 3 - Clinical Coding - Current Medications v02.docx

Train the Trainer Resources

Adaptable lesson plan for trainers presenting (face to face or online) on coding and data quality - Train IT Medical.docx

Adaptable slide-deck for trainers presenting on coding and data quality - Train IT Medical.ppt

Barriers to Quality Clinical Data Capture - Train IT Medical.docx

Case Studies

ADHA - Albert - Aboriginal man with kidney disease from remote WA.docx

ADHA - Charlie - Aboriginal man from remote NT - Train IT Medical.docx

ADHA - Esther - Aboriginal LGBTI woman from rural town.docx

APNA Case Study 1 - Martha with sample activities.docx

APNA Case Study 2 - Mrs Jones with sample activities.docx

APNA Case Study 3 - Sam - with sample activities.docx

Pharmacy - medication overdose.docx

Pharmacy - Olga - readmission following medication reason assumption.docx

Pharmacy - why entering a reason for medication is vital - Train IT Medical.docx

RACGP - Case Study After-hours deputising service - Train IT Medical.docx

RACGP - General practice Practice Management accreditation taskforce - Train IT Medical.docx

Nursing - Marg - chronic condition management and reason for medication - Train IT Medical.docx

Patient Kate and the importance of entering allergies and adverse reactions - Train IT Medical.docx

Practice Management - accreditation taskforce general practice - Train IT Medical.docx

Practice Management - Kylie's approach to high quality data - Train IT Medical.docx

- 3 software products
- Train the Trainer Resources
- Quality Improvement/PDSA
- PIPQI & ePIP resources
- Case Studies
- Cheatsheets
- Training Manuals

Quality Improvement (PDSA) samples



Activity – Use this blank PDSA form to create a customised improvement activity for your practice.

PDSA TEMPLATE WITH SAMPLE IMPROVEMENT ACTIVITY

What is our GOAL (what are we trying to accomplish)	Raise Awareness of Clinical Coding <ul style="list-style-type: none"> Code diagnoses 			
What measures will we use? (i.e. data)	% of diagnoses in Past Medical History for active patients that are coded			
What ideas can we use? (how are we going to achieve our goal)	<u>List ideas here to work on in table below</u> <ul style="list-style-type: none"> Team meeting to discuss the issue, benefits & how to address Attend education e.g. webinars / face to face sessions Post-education follow-up team discussion GP & RN team review of clinical documentation Use of Diagnosis coder to merge uncoded with coded diagnosis Pen CAT / Polar Data Quality Audit of records to measure baseline 			
IDEAS	PLAN How will we do it – who,	DO Did we do it	STUDY What	ACT What is our



Adaptable Training & Lesson Plan

Online / Webinar delivery or adapt for face to face workshop delivery

Shaded items apply to face to face delivery only.

Time – approximately 1 hour

Format		Time Total: 1 hrs	Additional Learning Activity	Resources, Links, Materials required	PowerPoint Slide #
Pre-learning	Participants will have been asked to prepare for the training by completing the following pre-attendance learning activities: <ul style="list-style-type: none"> - Videos relevant to own software (BP, MD or Communicare) - Summary Sheets relevant to own software 			Videos Summary sheets	
Introductions & Housekeeping	Introduce presenter Housekeeping for event	2		On arrival ensure everyone has: <ul style="list-style-type: none"> - Learning Workbook - Cardboard - Markers - Pens 	1 (on entry slide) 2
	Acknowledgement of Country	1			3
Explanation of learning goals	Learning Objectives: On completion of this training participants should be able to: <ol style="list-style-type: none"> 1. Explain the importance of clinical coding and how it is 		Questioning		4



Tools to help you overcome:

- barriers to quality data
- barriers to change

Host on your own intranet, or

Home / 1. Primary Care Data Quality Education Package - MEDICAL DIR...

1. Primary Care Data Quality Education Package - MEDICAL DIR...

Primary Care Data Quality Education

This training program, funded by the Australian Department of Health, is designed to support healthcare providers to:

- improve use of clinical information systems
- enhance the usefulness of patients records
- ... more

Add **Reorder** **Edit course info** **View as Learner** **...**

MODULE 1 - ADDING ABORIGINAL & TORRES STRAIT ISLANDER STATUS IN MEDICALDIRECTOR

- Video - Adding Aboriginal and Torres Strait Islander Status in MD
- Video + closed captions: Adding Aborigi...
- Summary Sheet - Adding Aboriginal and Torres Strait Islander status in MD.docx
- Module 1 - Key reasons to code Aboriginal and Torres Strait Islander s[...].pdf
- Extra learning resources & links to further learning.pdf

MODULE 2 - ADDING ALLERGIES & ADVERSE REACTIONS IN MEDICALDIRECTOR

- Module 2 - Video - Allergies and Adverse Reactions - MEDICALDIRECTOR - [...]mp4
- Module 2 - Key reasons to code Allergies and Adverse Reactions - MEDICAL[...]pdf
- Module 2 - Summary Sheet - Allergies and Adverse Reactions - MEDICALDI[...]docx

MODULE 3 - ADDING A DIAGNOSIS (PAST HISTORY) IN MEDICALDIRECTOR

- Module 3 - Video - Adding a coded diagnosis - MEDICALDIRECTOR - Train [...]mp4
- Module 3 - Key reasons to code a diagnosis - MEDICALDIRECTOR - Train IT[...]pdf
- Module 3 - Summary Sheet - Adding a coded diagnosis - MEDICALDIRECTOR [...]docx

MODULE 4 - ADDING MEDICATION & REASON FOR MEDICATION IN MEDICALDIRECTOR

- Module 4 - Video - Medication and Reason for Medication - MEDICALDIRECT[...]mp4
- Module 4 - Key reasons to code a reason for medication - MEDICALDIRECTO[...]pdf
- Module 4 - Summary Sheet - Medication and Reason for Medication - MEDI[...]docx

MODULE 5 - ADDING AN IMMUNISATION IN MEDICALDIRECTOR

- Module 5 - Video - Adding Immunisations - MEDICALDIRECTOR - Train IT Me[...]mp4
- Module 5 - Key reasons why Coding an Immunisation is important - MEDICAL[...]pdf
- Module 5 - Summary Sheet - Adding an Immunisation _adult_ - MEDICALDIR[...]docx
- Module 5 - Summary Sheet - Adding an Immunisation _child_ - MEDICALDIR[...]docx

Learning Management Solution (LMS)

EXTRA LEARNING RESOURCES

- Summary Sheet - How to configure user options to help maintain data quality
- Summary Sheet - Adding a coded reason for visit - MD
- Training Manual/Learning Workbook for MedicalDirector (MD)

QUALITY IMPROVEMENT ACTIVITY RESOURCES AND SAMPLES

- PDSA sample- Improving recording of Aboriginal and Torres Strait Islander status
- PDSA Template Sample: Clinical Coding. Data Quality Improvement Activity.
- PDSA Template Sample: Current Medication...

TRAIN THE TRAINER RESOURCES

- Adaptable Slide-deck for trainers presenting on coding and data quality.ppt
- Adaptable Lesson Plan/Guide for trainers presenting on coding & data quality
- Video Script - Adding Aboriginal and Torres Strait Islander status in MD.docx
- Barriers to quality clinical data captur...

CASE STUDIES

- ADHA - Albert - Aboriginal man with kidney disease from remote WA .docx
- ADHA - Charlie - Aboriginal man from remote NT .docx
- ADHA - Esther - Aboriginal LGBTI woman from rural town.docx

Train IT Medical
Competence with Confidence

Bp Premier

Adding a coded diagnosis

(using Best Practice Clinical software)

An educational learning video by:
Katrina Otto
Train IT Medical Pty Ltd
www.trainitmedical.com.au
katrina@trainitmedical.com.au
Designed in collaboration.

Australian Government
Department of Health

CSIRO

This Primary Care Data Quality Education Project
is designed to improve patients' electronic health records in
primary health care services and received funding from the
Australian Government: Department of Health.

00:04 | 04:25

Complete and continue

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Competence with Confidence

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Australian Government
Department of Health

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MODULE 1 - ADDING ABORIGINAL & TORRES STRAIT ISLAN...
Video - Adding Aboriginal and Torres Strait Island...
Video + closed captions: Adding Aboriginal and/or...
Summary Sheet - Adding Aboriginal and Torres Strai...
Module 1 - Key reasons to code Aboriginal and Tor...
Extra learning resources & links to further learni...
MODULE 2 - ADDING ALLERGIES & ADVERSE REACTIONS IN...
Module 2 - Video - Allergies and Adverse Reactions
Module 2 - Key reasons to code Allergies and Adver...
Module 2 - Summary Sheet - Allergies and Adverse R...
MODULE 3 - ADDING A DIAGNOSIS (PAST HISTORY) IN ME...
Module 3 - Video - Adding a coded diagnosis
Module 3 - Key reasons to code a diagnosis
Module 3 - Summary Sheet - Adding a coded diagnosi...
MODULE 4 - ADDING MEDICATION & REASON FOR MEDICATI...
Module 4 - Video - Medication and Reason for Medic...
Module 4 - Key reasons to code a reason for medica...

MedicalDirector

The screenshot shows the MedicalDirector website. At the top, there is a navigation bar with the MedicalDirector logo, links for 'solutions', 'support', and 'about', and a 'Contact Us' button. Below the navigation bar is a large hero image of a hand writing on a document with a laptop in the background. The text 'Primary care data quality improvement' is overlaid on the image. Below the hero image is a section with the text 'Maintaining high-quality health records benefits patients, providers and the entire healthcare community.' and a sub-headline 'Discover how good data integrity can help you in your practice by listening to these testimonials from a Registered Nurse, General Practitioner and Practice Manager.' Below this is a video player with three thumbnails of speakers: Margaret Windsor (Registered Nurse, Cert IV), Dr Charlotte Middleton (General Practitioner, MBBS), and Katrina Otto (Practice Manager, BEd, DipBus).

“Guidelines for maintaining high quality data for your active patients.”

Access via: <https://www.medicaldirector.com/PCDQIP>

Free, easy access via Train IT Medical LMS: courses.trainitmedical.com.au

The image displays three mobile application cards for CSIRO Primary Care Data Quality Education Packages. Each card is designed for a mobile device and includes the following elements:

- Top Left:** A green badge with the word "Free".
- Top Right:** Logos for "Medical", "Bp Premier", and "MedicalDirector".
- Header:** "CSIRO Primary Care Data Quality Education Package Using [SOFTWARE NAME]".
- Body:** "An educational learning activity for [NAME] (CPE)".
- Image:** A graphic of a person at a computer.
- Text:** "CSIRO Primary Care Data Quality Education Package - [SOFTWARE NAME]".
- Button:** A blue button labeled "See more...".
- Progress:** A progress bar at the bottom showing "0% COMPLETE".

Train for quality



Managing Complex Change



Keep up to date by connecting with us:

primarycaredataquality@csiro.au

Kylynn.Loic@csiro.au



katrina@trainitmedical.com.au

Twitter: [trainitmedical](#)

Facebook: [trainitmedical](#)

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Thank you!