precedence healthcare

The Use of a Web-Based Chronic Disease Management Service (CDMS) for Collaborative Care

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insafehands

The Big Picture

Changing Needs

1900-1950	**Infectious Diseases**
1950-2000	**Hospital-based Care**
2000-2050	**Collaborative Care**

The Problem

Chronic Disease: Big and Growing

Major burden on the health system:
Australia $60 billion; US $1,270 billion per annum

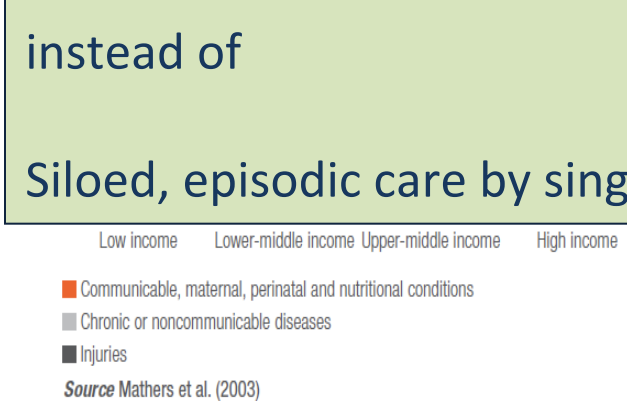
Drastic effect on quality of life, morbidity and mortality and a major economic burden in developed and developing economies:
GDP Loss (2015): Australia $12B; US: $2,000B, China $75B

Key to solving the problem:
Collaborative, planned, continuous care involving whole care team and the patient

instead of

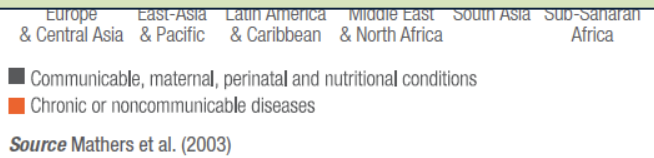
Siloed, episodic care by single GP or hospital

Figure 1 Worldwide share of deaths by causes and World Bank income catagory (2002)



Source Mathers et al. (2003)

Figure 2 Worldwide share of deaths by cause and World Bank region (excluding high-income countries, 2002)



Source Mathers et al. (2003)

Wagner Chronic Care Model

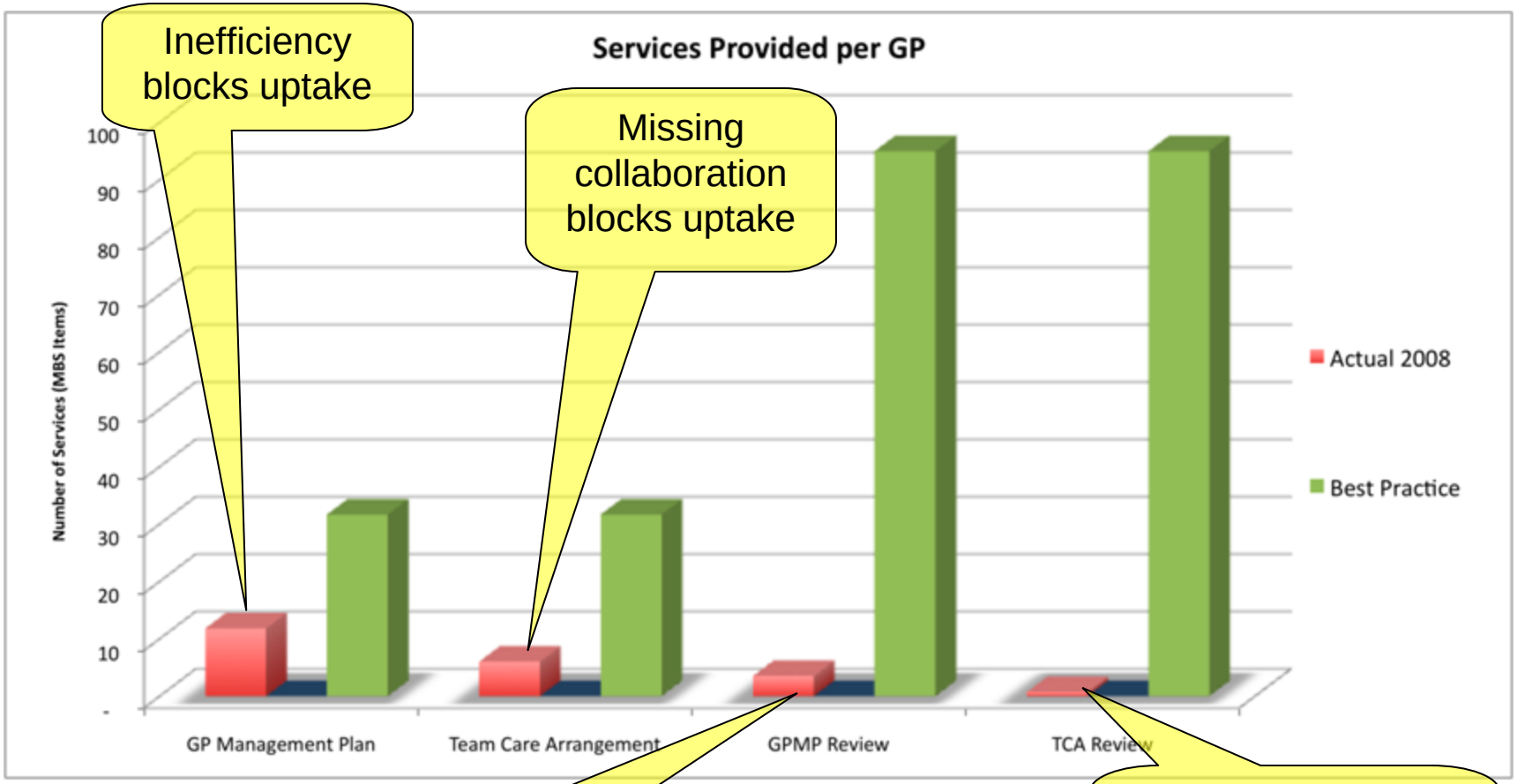
Self Management Support
Empower and prepare patients to manage their health and health care
Use effective self-management support strategies that include assessment, goal-setting, action planning, problem-solving and follow-up
Delivery System Design
Assure the delivery of effective, efficient clinical care
Use planned interactions to support evidence-based care
Ensure regular follow-up by the care team
Decision Support
Embed evidence-based guidelines into daily clinical practice
Integrate specialist expertise and primary care
Share evidence-based guidelines and information with patients
Clinical Information System
Provide timely reminders for providers and patients.
Facilitate individual patient care planning
Share information with patients and providers to coordinate care
Monitor performance of practice team and care system

We are not doing very well …

- Over 50% of doctors do not follow best practice guidelines
- Less than 25% of chronic disease patients on collaborative care plans, less than 5% tracked for adherence
- 15-30% of people don't take prescribed medications
- 50% unnecessary acute episodes/hospitalisations from lack of knowledge of patient condition
- Lack of information major cause of preventable adverse events
- Care team operates in silos, information not shared across care team, inefficient service use
- No support for patient self management – adhering to care plan, ensuring appointments made, visits attended, medications renewed, conditions monitored

Barriers to Best Practice Care

Diabetes Management



CDMS:
A Web-Based Service to enable Collaborative Care

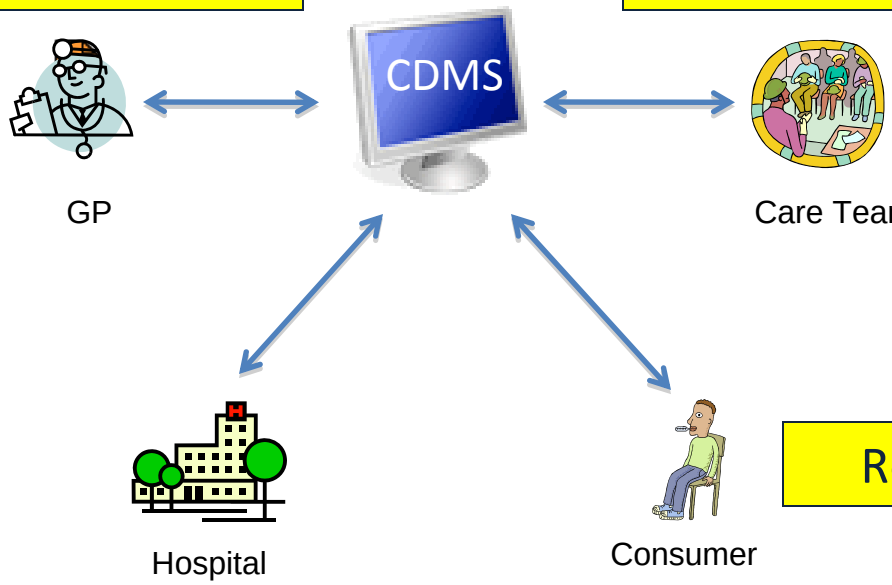
CDMS: How it works

A collaborative web-based service to:
create, share, track, monitor, and manage collaborative care plans

Start Tracking

Updates & Reviews Plan

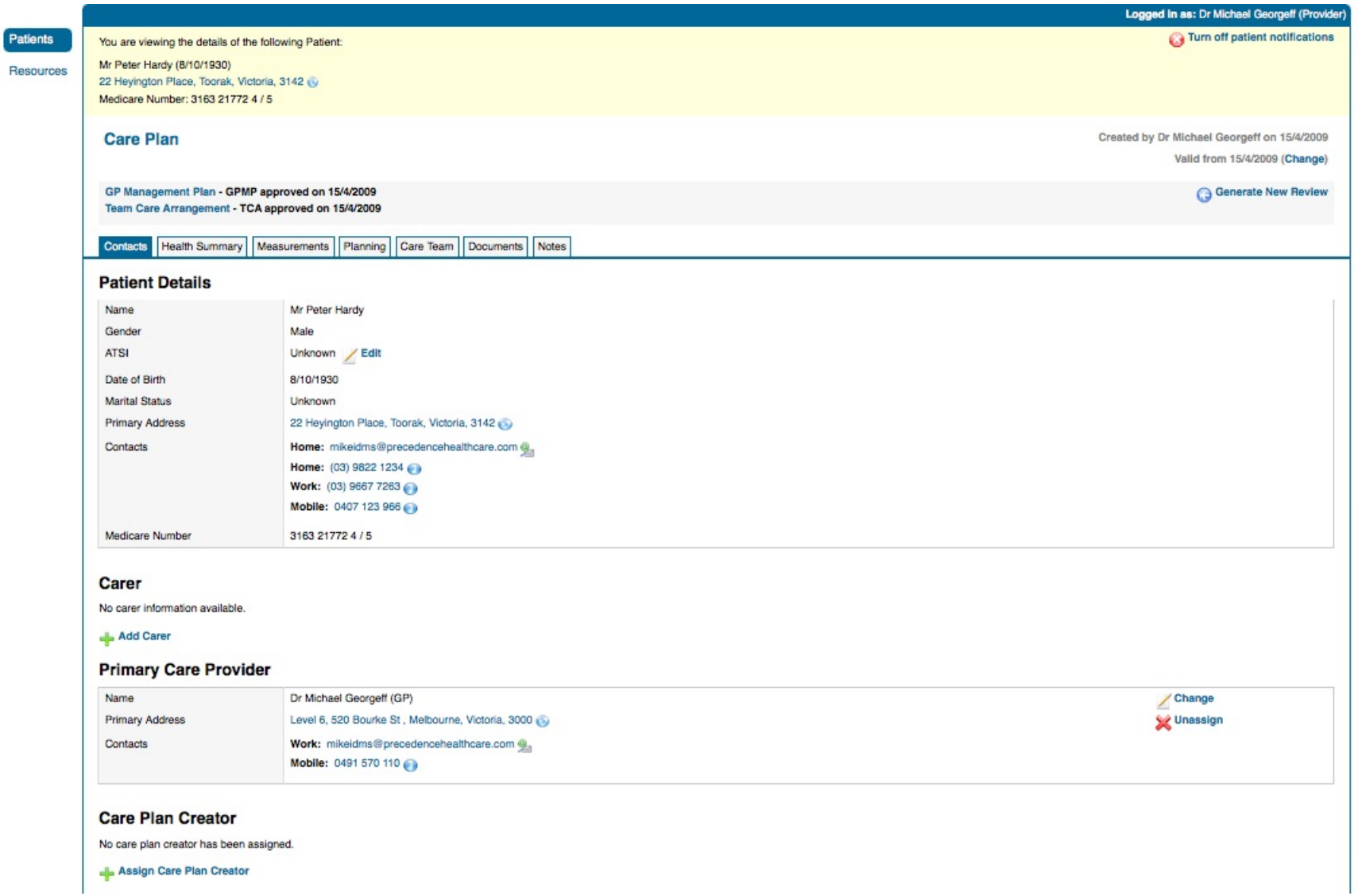
Updates EMR & Appts



Reminders & Alerts

Display EMR & Care Plan

Team and Patient Contact Details



Clinical Information from GP Desktop

Smoking Status	Smoker (4/day) Edit
Drinking Status	Drinker (3 drinks 5-6 days a week) Edit
Family History	None recorded.

Current Medications

Medication	Strength	Dose & Frequency	Route	Elapses
PARACETAMOL Tablet	500mg	2 q.i.d.	Oral	-
MINIPRESS Tablet	1mg	1/2 b.d.	Oral	15/6/2009
COLGOUT Tablet	500mcg	2	Oral	-
MAREVAN Tablet	1mg	-	Oral	-
BRICANYL TURBUHALER Turbuhaler	500mcg/dose	1 q.4.h.	Inhale	-
VISTIL FORTE Eye Drops	3%	1 drop p.r.n.	Eye	-
MICARDIS PLUS 80/12.5mg Tablet	80mg/12.5mg	1 mane	Oral	-
LANOXIN Tablet	250mcg	1 mane	Oral	-
MYLANTA P (Formerly MYLANTA ORIGINAL) Liquid	200mg-200mg-20mg/5mL	20 mL q.i.d. p.r.n.	Oral	-
DIAFORMIN Tablet	500mg	1 b.d.	Oral	-
NEXIUM Tablet	20mg	1 daily	Oral	-
SERETIDE MDI Inhaler	250mcg-25mcg/dose	2 Puffs b.d.	Inhale	-
MAREVAN Tablet	5mg	-	Oral	-
SPIRIVA Capsule	18mcg	1 daily	Inhale	-

Adverse Reactions

Agent	Reaction	Date Recorded
ABACAVIR	Rash	15/4/2009
ASPIRIN	-	15/4/2009
CEFACLOR	-	15/4/2009
FELODIPINE	-	15/4/2009
KLACID	-	15/4/2009
PENICILLINS	-	15/4/2009
SOMAC	-	15/4/2009

Immunisations

No Immunisations.

Measurements from Full Care Team

Contacts | Health Summary | **Measurements** | Planning | Care Team | Documents | Notes

Latest Measurements

Observations

Measurement	Latest	Target	Recent Measurements				
			15/12/2008	16/12/2008	16/12/2008	17/02/2009	22/03/2009
Blood Pressure (mm/Hg)	140/90	< 140/80	-	140/80	-	150/95	140/90
Waist Circumference (cm)	100		-	-	-	-	-
Weight (kg)	78	< 74	-	75	75	78	-
Height (cm)	160		-	160	-	160	-
BMI (kg/m²)	30		29	29	29	30	-

Add New

Test Results

Measurement	Latest	Target	Recent Measurements				
			24/10/2008	16/11/2008	17/11/2008	08/02/2009	17/02/2009
Blood Sugar Level (mmol/L)	8.5	< 7.0	-	7	-	7.5	8.5
Creatinine (µmol/L)	133		-	-	124	133	-
HbA1c (%)	7	≤ 7.0	7	7	-	7	-
Microalbumin (Spot Albumin : Creatinine Ratio) (mg/mmol)	2.6		-	-	3	2.6	-
Proteinuria (mg/24 hours)	18		-	-	15	18	-
Estimated GFR (eGFR)	48		-	-	52	48	-

Add New

Lipids

Measurement	Latest	Target	Recent Measurements				
			-	-	-	-	04/02/2009
HDL (mmol/L)	0.8	≥ 1.0	-	-	-	-	0.8
LDL (mmol/L)	3.2	< 2.5	-	-	-	-	3.2
Total Cholesterol (mmol/L)	6.7	< 4.0	-	-	-	-	6.7
Triglycerides (mmol/L)	2.5	< 2.0	-	-	-	-	2.5

Add New

Home Monitoring

Personalised Evidence-Based Plan

General

Goal	Task Description	Responsible Party	Frequency	Status	Next	Comment
Clear understanding of diabetes Target: Patient has received education	Education	Mr G. Wang (Diabetes Educator)	Every 2 years		Due Apr 2009	
	Review	Dr M. Georgeff (GP)	Every year	15 Apr 2009	Due Apr 2010	

Lifestyle

Goal	Task Description	Responsible Party	Frequency	Status	Next	Comment
Maintain healthy diet Target: Patient maintaining healthy diet	Education	Mr P. Hicks (Dietitian)	Every 2 years		Due Apr 2009	
	Review	Dr M. Georgeff (GP)	Every year	15 Apr 2009	Due Apr 2010	
	Self management	Patient	Ongoing			
Maintain physical well-being Target: 30 Minutes per day of selected excercise 5 days per week	Education	Mr G. Wang (Diabetes Educator)	Every 2 years		Due Apr 2009	
	Review	Dr M. Georgeff (GP)	Every year	15 Apr 2009	Due Apr 2010	
	Self management	Patient	Ongoing			
Manage body weight Target: Weight < 74 kg	Counselling	Mr P. Hicks (Dietitian)	Every 2 years		Due Apr 2009	
	Review	Dr M. Georgeff (GP)	Every year	15 Apr 2009	Due Apr 2010	
	Self management	Patient	Ongoing			
Cease smoking Target: Complete cessation	Counselling	Mr G. Wang (Diabetes Educator)	Every year		Due Apr 2009	
	Review	Dr M. Georgeff (GP)	Every year	15 Apr 2009	Due Apr 2010	
	Lifescripts	Patient	Ongoing			
Manage alcohol consumption Target: ≤ 2 Standard Drinks per day	Counselling	Mr G. Wang (Diabetes Educator)	Every 2 years		Due Apr 2009	
	Review	Dr M. Georgeff (GP)	Every 6 months	15 Apr 2009	Due Oct 2009	
	Self management	Patient	Ongoing			

Biomedical

Documents Automatically Generated

Australian Gov
Department of H

Enha
Referral form for i

To be completed by referri
Please tick:
✓ Patient has GP Management Pla
GP has contributed to or reviewe
Note: GPs are encouraged to attach

Medicare rebates ar
Patients shoul

GP details
Provider Number 4 0 0 9
Name Dr Michael Ge
Address Level 6, 520 Bo

Patient details
Medicare Number 3 1 6 3
First Name Peter
Address 22 Heyington

Allied Health Professional (AH
Name Mr Kim Ingot
Address Level 8, 41 Litt

Referral details – Please use a
Eligible patients may access Medicar
of services required by writing the nu

No of services	AHP Type	N
	Aboriginal Health Worker	1
	Audiologist	1
	Chiropractor	1
1	Diabetes Educator	1
1	Dietitian	1

Referring General Practitioner's signature Electronical

The AHP must provide a written re
Allied health professionals sh
Allied health services funded by o
This form may be downlo
or or
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precedence healthcare

Home Medicines Review (HMR) Referral

Generated by Precedence Health Care

Approved on 15/4/2009

General Practitioner Details	Community Pharmacy Details	Patient Details
Provider Number: 400968WY Dr Michael Georgeff Level 6, 520 Bourke St , Melbourne, Victoria, 3000 0491 570 110	Mr Alex Perrington 22 Jolly Road, Geelong, Victoria, 3220	Medicare Number: 3163 21772 4 / 5 Mr Peter Hardy 22 Heyington Place, Toorak, Victoria, 3142 (03) 9822 1234

Dear Mr Perrington,

I would kindly request that a Home Medication Review be conducted for Peter Hardy, age 78. The patient's current medications and condition summary is attached for your information. You can view the patient's full details and care plan by going to the CDMS web site https://precedencehealth.org:4443/cdms.

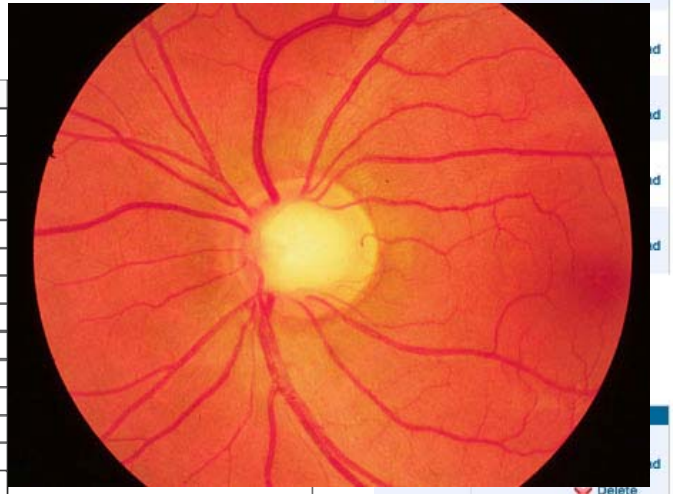
This patient fits the HIC criteria for HMR and has provided me with informed consent for you to proceed with this item number. I am this patient's usual GP.

ATSI Status

Patient does not identify as Aboriginal or Torres Strait Islander

Past Medical History

Date	Condition
2/12/2003	Peripheral Neuropathy
25/8/1979	Asthma
25/7/2005	Gastroscopy
15/1/2003	Reflux oesophagitis
7/4/2006	Benign positional vertigo
24/11/2005	Prostatectomy - TUR
27/5/2005	Colonoscopy
20/2/1998	Cataract removal
2/3/1997	Atrial Fibrillation
1/2/1998	Diabetes Mellitus - Type II
1/12/2005	Cataract removal
11/11/2004	Microalbuminuria
3/9/1998	Erythema Nodosum
29/6/2004	Gout
5/5/2006	Hypertension



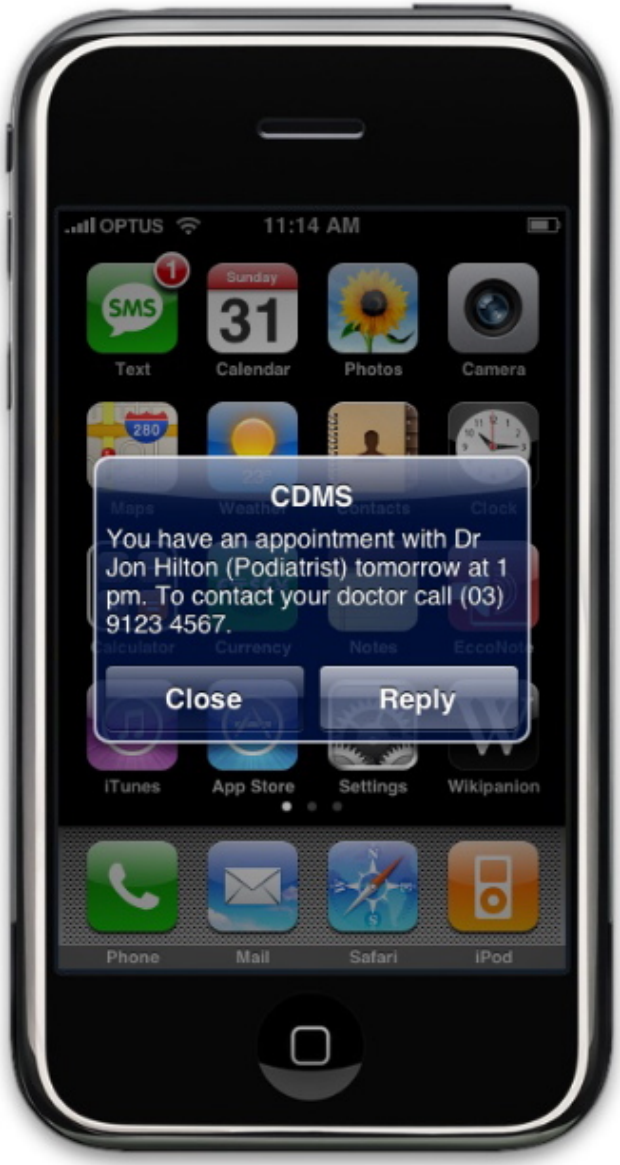
Current Medications

Logged in as: Dr Michael Georgeff (Provider)
Turn off patient notifications
Created by Dr Michael Georgeff on 15/4/2009
Valid from 15/4/2009 (Change)
Generate New Review
View All

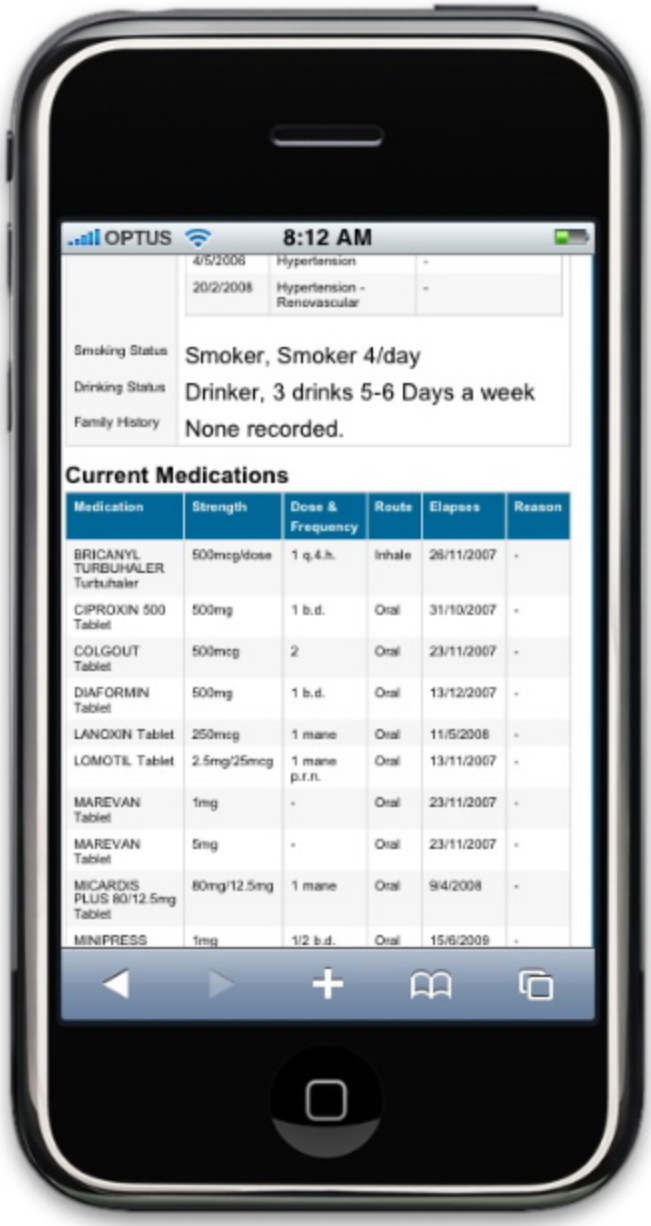
Approval/Agreement Date	Actions
15/4/2009	View, Download
15/4/2009	View, Download
15/4/2009	View, Download

Delete

Intelligent Tracking and Alerting

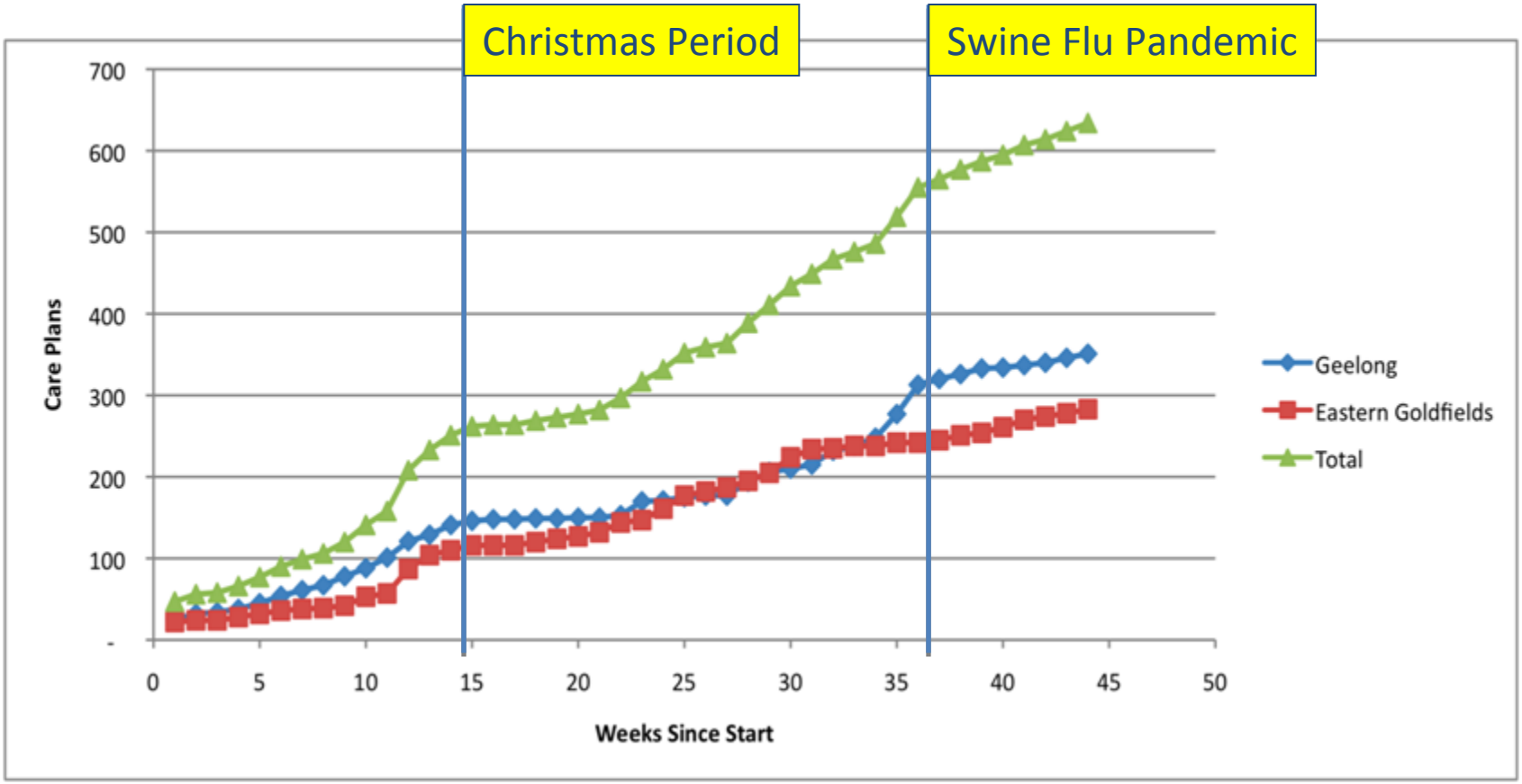


Accessible Anywhere, Anytime



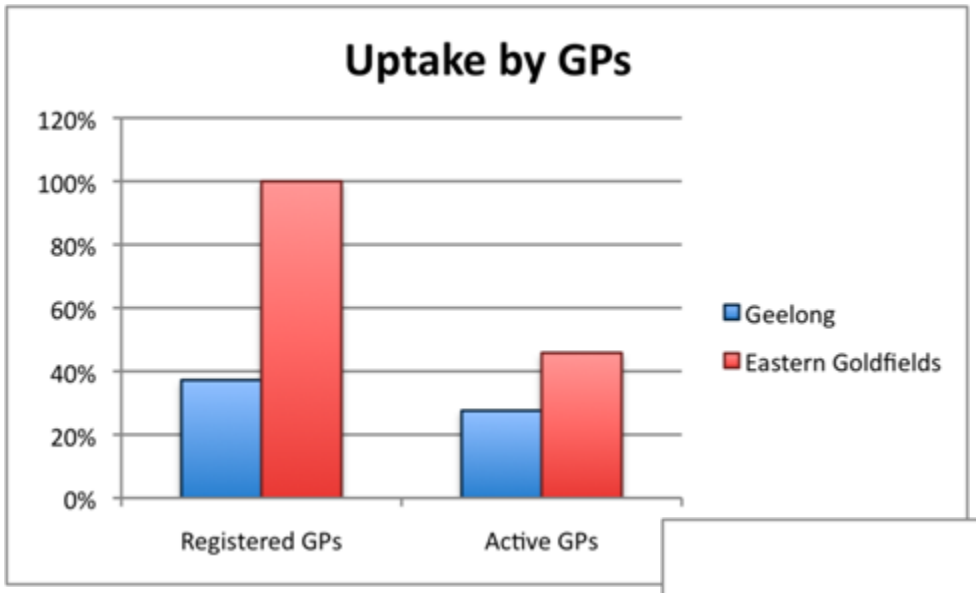
Results to Date

Care Plan Uptake

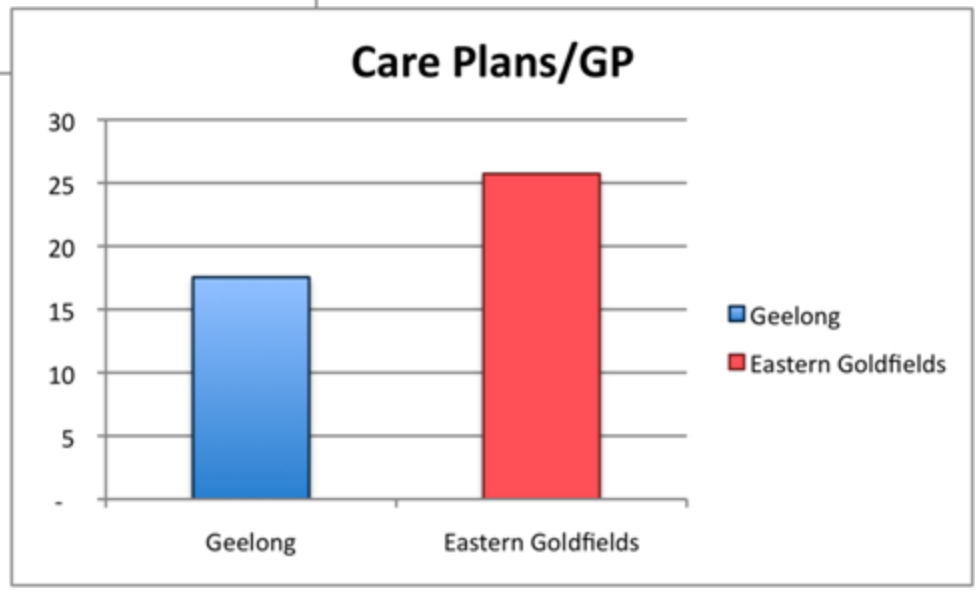


Benchmark - Tasmania HealthConnect Trials: 844 patients in 2 years

CDM-Net Uptake

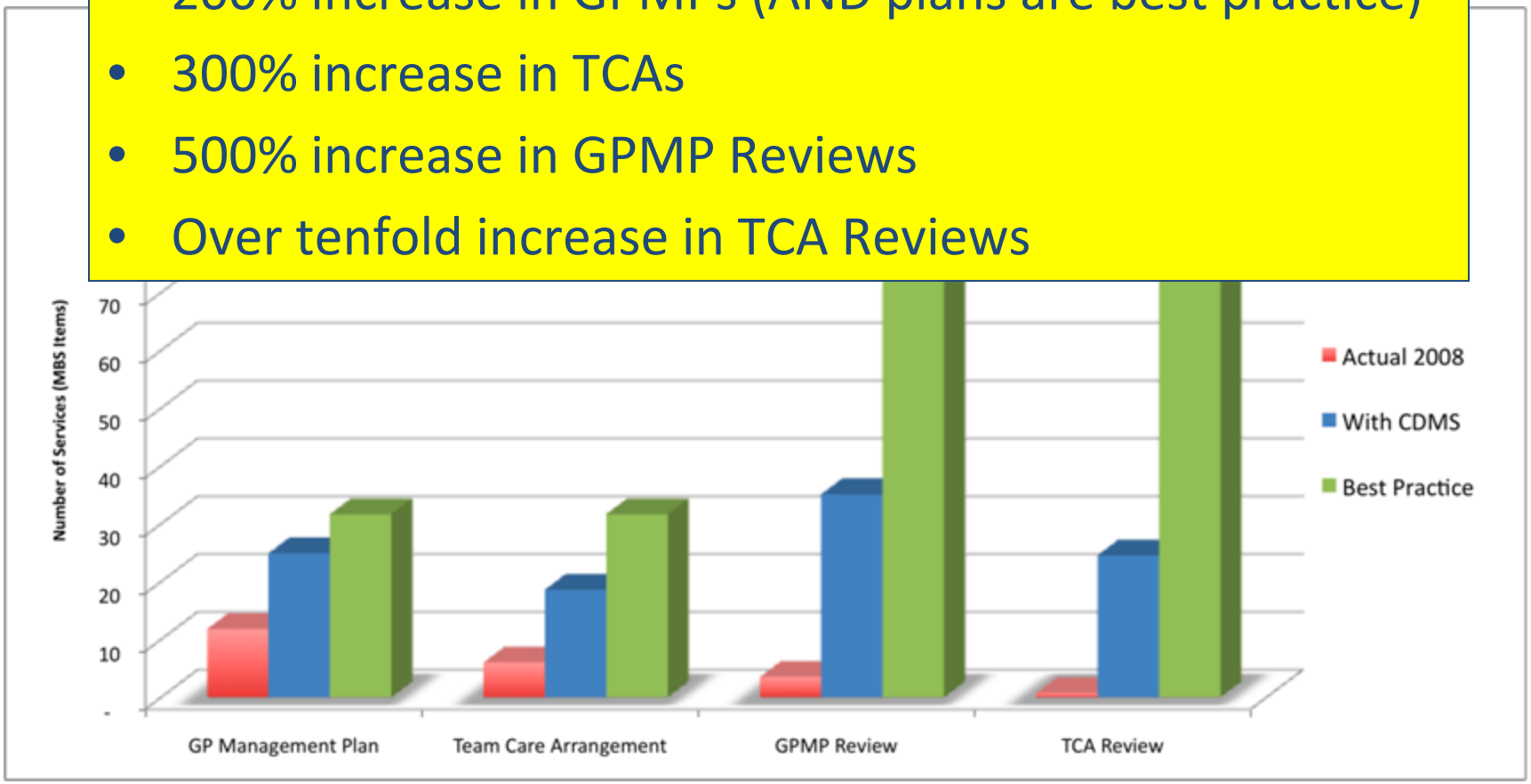


Benchmark - Tasmania HealthConnect Trials: 30%



Towards Best Practice Care

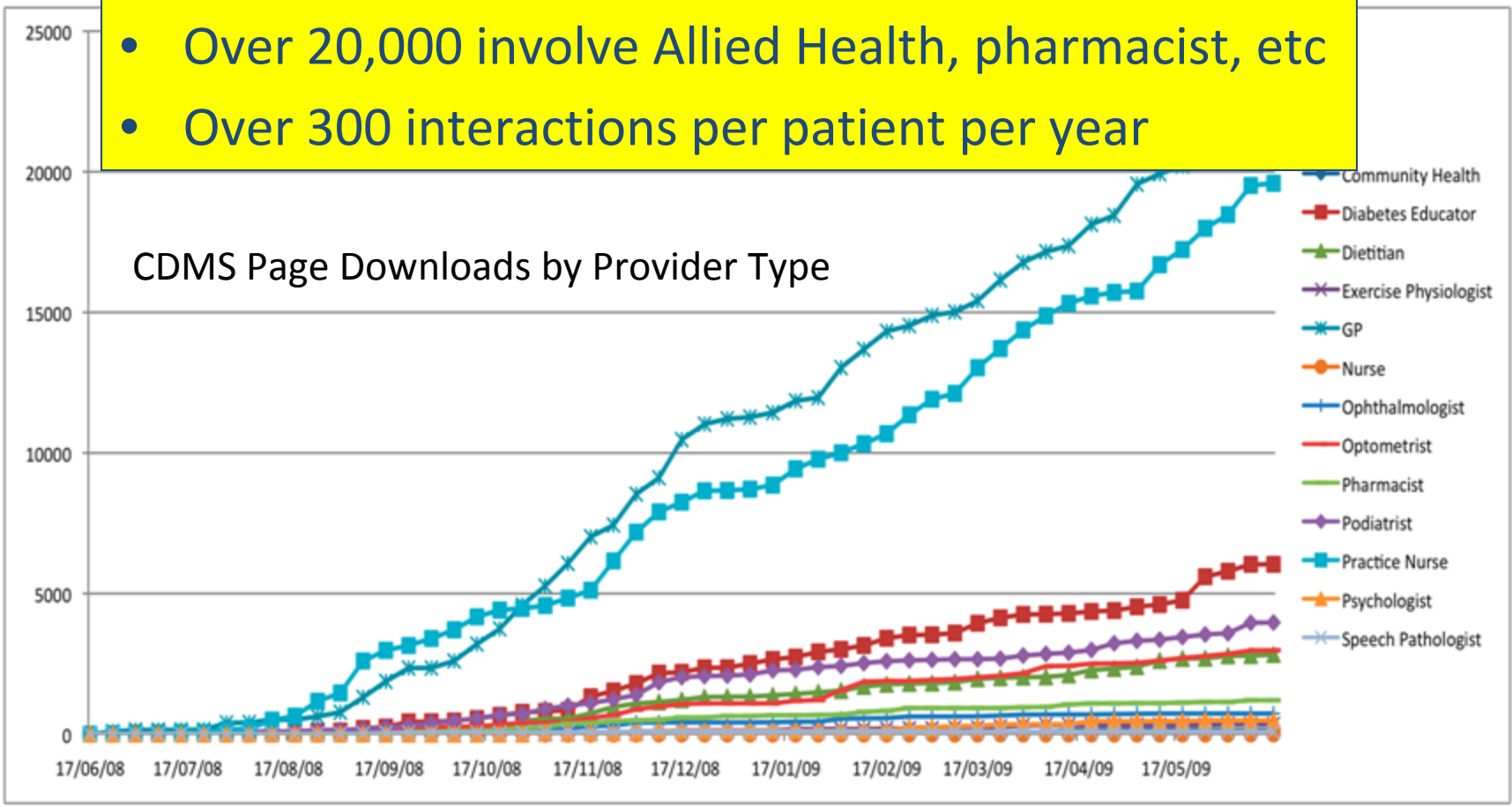
- 200% increase in GPMPs (AND plans are best practice)
- 300% increase in TCAs
- 500% increase in GPMP Reviews
- Over tenfold increase in TCA Reviews



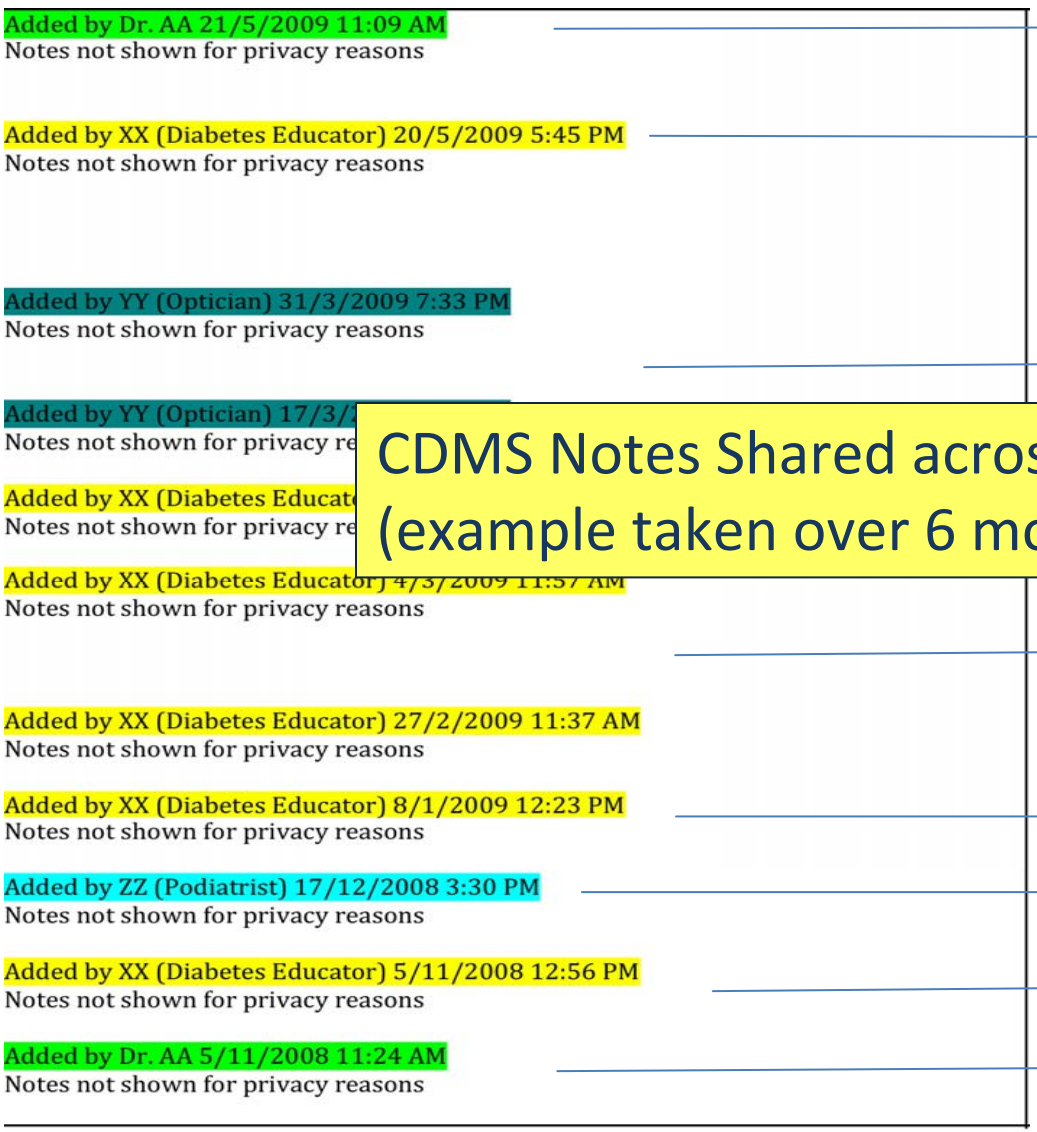
Eastern Goldfields

Team Care Collaboration

- Over 60,000 total page downloads
- Over 20,000 involve Allied Health, pharmacist, etc
- Over 300 interactions per patient per year



Dynamic Collaborative Care

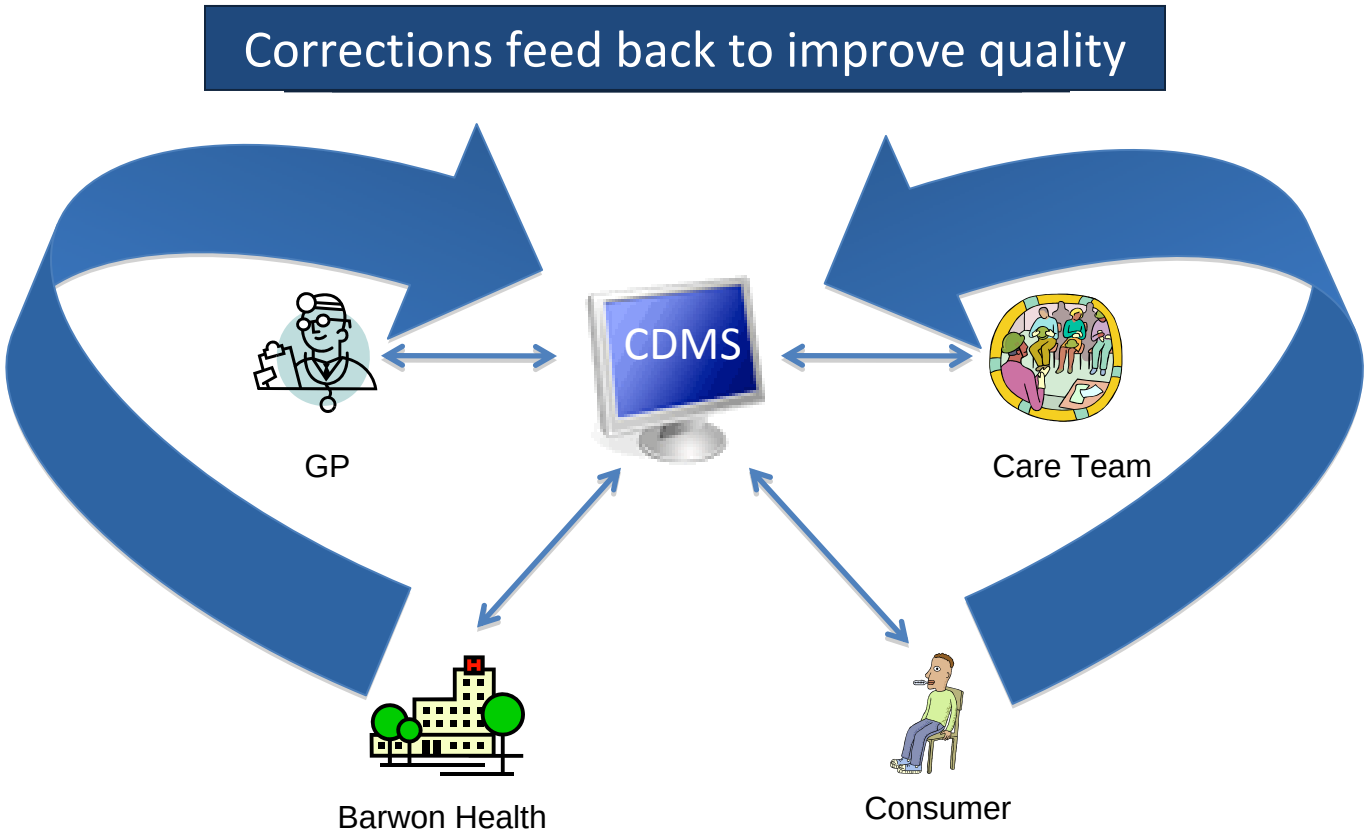


Population Health and Surveillance

Able to track in real time:

- EHR components (histories, medications, allergies, etc)
- Measurements, tests
- Actions and events
- Compliance
- Collaborations
- Effectiveness of care
- Service use
- Disease outbreaks and early detection

Data Quality Improvement



Other Chronic Diseases

By September 2009:

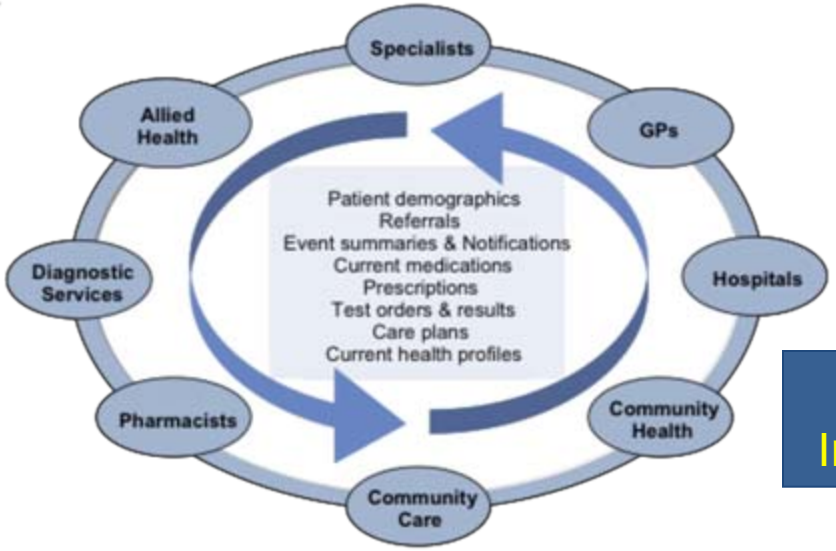
- Depression
- Chronic kidney disease
- Cardiovascular disease
- Chronic heart failure
- Stroke
- Chronic obstructive pulmonary disease
- Asthma
- Arthritis
- Osteoporosis

How does CDMS fit with Australia's Health Reform Strategies?

National e-Health Strategy

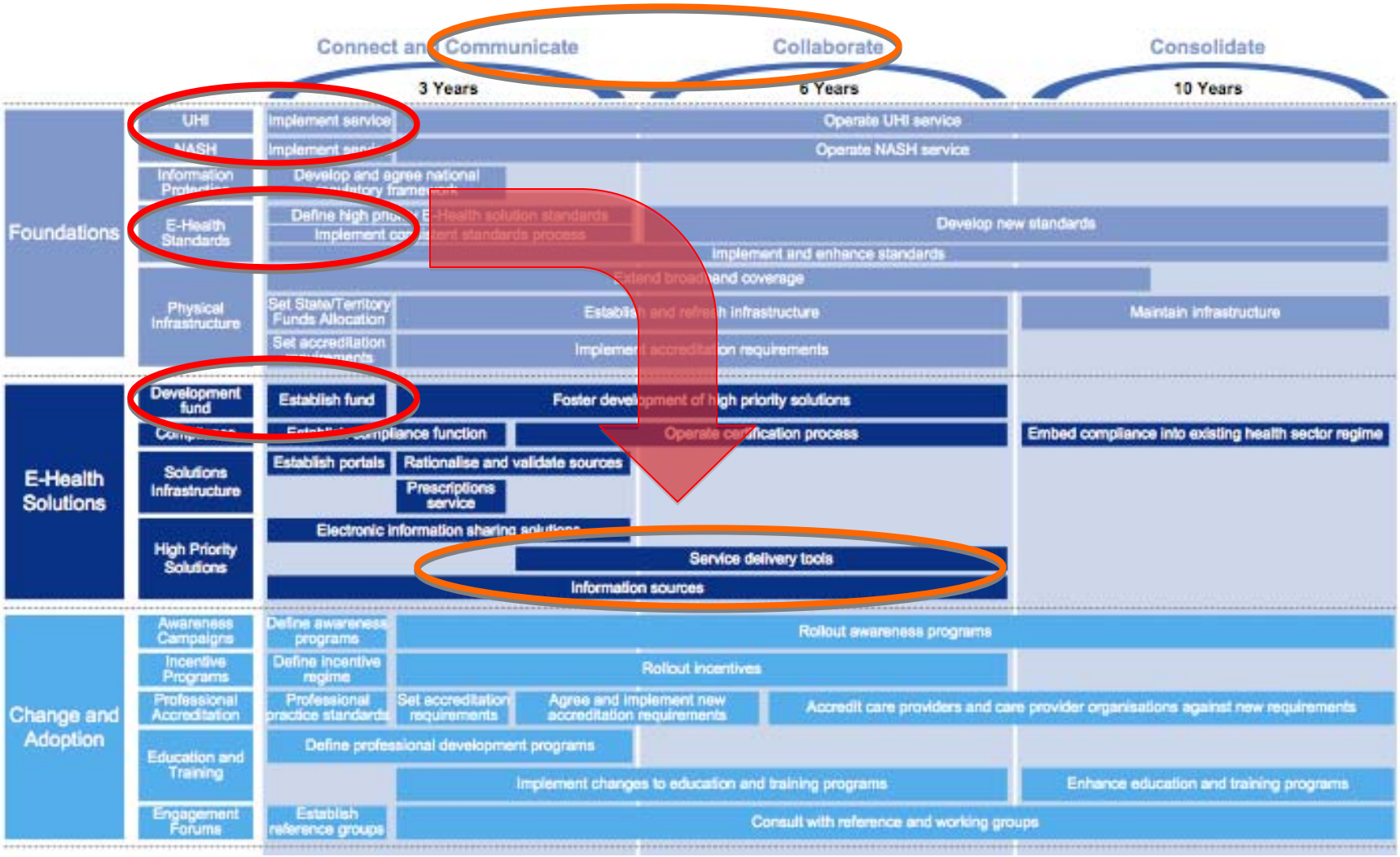
Service Delivery Tools	• Decision support for medication management • Decision support for test ordering	Encouraging the development of specific tools that improve the quality of clinical decision making and can reduce adverse events and duplicated treatment activities.
	• Chronic disease management solutions. • Telehealth and electronic consultation support	Encouraging development of specific tools that improve the management of chronic disease and the accessibility of care delivery. Chronic disease management solutions enable timely identification and monitoring of individuals and support management of their condition by providing automated reminders and follow-ups. Telehealth and electronic consultation tools enable improved rural, remote and disadvantaged community access to health care services.

Priority Solution



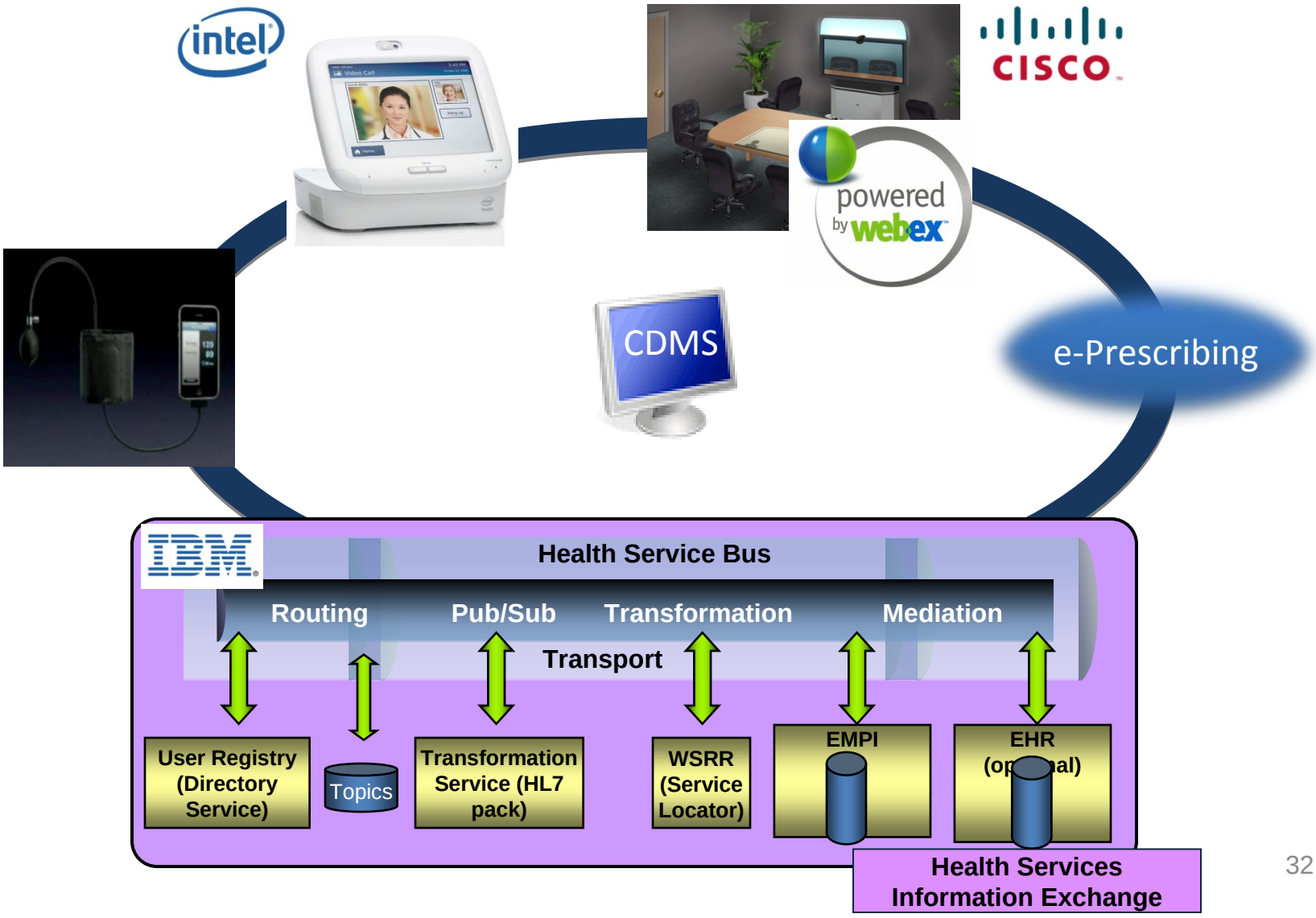
Drives Key Information Flows

Aligned with e-Health Roadmap



Future Directions

Extend Collaboration Capabilities



Partners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intel


CISCO


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a working systems company


project.net

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Health


diabeteswa
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Centre of Excellence in e-Medicine
Affordable and non-invasive medical imaging technologies for the whole humanity


EHEALTH
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