



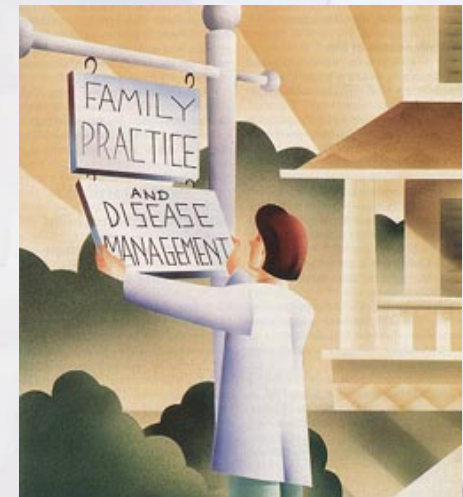
# Technology supporting CCM – Use I.T.

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**Dr David Hay – Enterprise Architect healthAlliance**



# The CCM Programme

- High need patients
- 4 free practice visits per annum
- 6 hours nursing time per annum
- Structured notes
  - Embedded within practice computer software
- Empowered primary care
  - Secondary outreach/training
  - Electronic decision support
  - Regular reporting on progress
- Empowered Patients
  - Care Planning - patient held “wellness plans”



# The IT behind CCM

The information technology components of the CCM programme are essential to:

- Prompt best practice through the use of templates and real time electronic clinical decision support (ECDS)
- Enable structured recall and payments
- Facilitate workflow through the practice and to keep track of patient reminders and recalls
- Give reporting and feedback to practices, PHO's and the DHB.



# Defining the Privacy Requirements

# CCM Privacy Matrix

- A Privacy Matrix was jointly developed between CMDHB and a key stakeholder group encompassing representatives from Primary and Secondary Care, PHO Group (GPHO) and DHB staff to define the access to data.
- It was agreed that:
  - Secondary Care Clinicians involved in the patient's healthcare can view CCM and associated programme data such as Care Plus or Get Checked
  - DHB Managerial staff cannot see named practice and patient level data
  - DHB Managerial staff can only see aggregate information by named PHO (and anonymised practice)
  - Programme Manager can see identifiable information for the purpose of resolving any issues around templates/funding

# CCM Privacy Matrix

routine CCM reporting - distribution of reports - also assume more than one DHB involved

version 1.3	Public web site	Other District Boards	Own District Board	DHB office	CMDHB provider wing removed from version 1.3. For further discussion before resubmitting.	steering group / governance	programme manager	PHO	Practice site	Any clinician involved in care of that patient
<b>principles</b>										
<b>Individual patient</b>										
identifiable clinical data	No	No	No	No	0	No	IF [ref 1]	No	Yes	Yes
identifiable activity data	No	No	No	No	0	No	Yes	Yes	Yes	Yes
ie funding data										
<b>Aggregated data</b>										
<b>Clinical</b>										
aggregated by <b>clinician</b>										
clinician named	No	No	No	No	0	No	No	IF [ref 1]	Yes	Yes
clinician NOT named	No	No	No	No	0	No	Yes	Yes	Yes	Yes
aggregated by <b>practice site</b>										
practice named	No	No	No	No	0	No	No	If [ref 1]	Yes	Yes
practice NOT named	No	No	No	ref GPHO [ref 2]	0	Yes	Yes	Yes	Yes	Yes
aggregated by <b>PHO</b>										
PHO named	GPHO [ref 3]	GPHO [ref 3]	Yes	Yes	0	Yes	Yes	Yes	Yes	Yes
PHO NOT named	GPHO [ref 3]	GPHO [ref 3]	Yes	Yes	0	Yes	Yes	Yes	Yes	Yes
aggregated by <b>DHB district</b>										
DHB district named	Yes	Yes	Yes	Yes	0	Yes	Yes	Yes	Yes	Yes
DHB district NOT named	Yes	Yes	Yes	Yes	0	Yes	Yes	Yes	Yes	Yes
<b>Activity</b>										
aggregated by <b>clinician</b>										
clinician named	No	No	No	No	0	No	No	Yes	Yes	Yes
clinician NOT named	No	No	No	Yes	0	Yes	Yes	Yes	Yes	Yes
aggregated by <b>practice</b>										
practice named	No	No	No	No	0	No	Yes	Yes	Yes	Yes
practice NOT named	No	No	No	GPHO [ref 2]	0	Yes	Yes	Yes	Yes	Yes
aggregated by <b>PHO</b>										
PHO named	No	No	Yes	Yes	0	Yes	Yes	Yes	Yes	Yes
PHO NOT named	Yes	Yes	Yes	Yes	0	Yes	Yes	Yes	Yes	Yes
aggregated by <b>DHB district</b>										
DHB district named	Yes	Yes	Yes	Yes	0	Yes	Yes	Yes	Yes	Yes
DHB district NOT named	Yes	Yes	Yes	Yes	0	Yes	Yes	Yes	Yes	Yes

NOTE - Decision support and report writers will need a confidentiality agreement

Refs

- for individual patients, where data errors occur, the programme manager is required to resolve the data flow issues, and cannot do this without having access to the clinical data, even though this is unwanted and not relevant. In this situation sighting of the clinical data should be accepted. This data also includes the identifiable clinician, practice and PHO involved
- the DHB is charged with purchasing services and is responsible for ensuring quality in these services. Distribution of variances at practice level is an indication of quality. Working with PHOs to minimise inappropriate variation in practice performance is an appropriate part of the DHB mandate. Advice on the acceptability of this data aggregation, being available to the DHB is therefore sought
- Information leaving the district should first be agreed by the PHOs involved and the DHB, as misinterpretation may occur. Therefore, information going to a website would need sign off by these groups first.

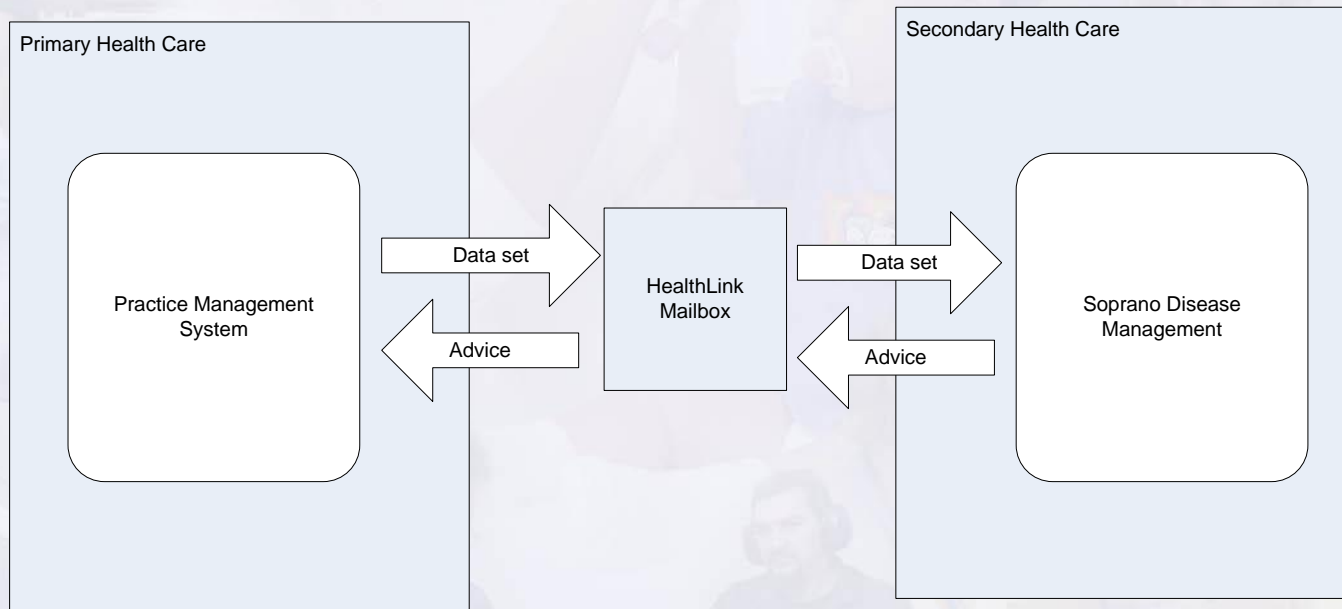
# Patient Awareness.....

- Patient awareness is paramount when collecting and sharing data
- It was agreed with the Consumer Panel that:
  - The **Wellness Plan** explains who may access their information and has a page that needs to be signed by the patient.
  - On the '**Programme Consent**' check box in the **templates** a mouse over of "Has the patient been informed about the CCM programme and given their consent to have their data recorded?"
  - For all **new enrolments** the IT now displays a **dialogue box** saying "Please note that the patient information included in this template may be shared by all members in the patients care team, which includes specialist nurses and doctors within secondary and primary care settings. Please ensure the patient is aware of this prior to submitting the template."
- We consulted with various groups including the Consumer Panel to get their views around sharing of information – they were supportive of the methods we used to advise patients





# Initial Implementation - 2000



# The Medtech Common Form Tool

CCM SMITH Arnie (3263)

Main | Diabetes | Diabetes ... | CHE | COPD | CVD | Chart | Documents | Audit | Parked

Main  
Provider: Sam Eaves (SFE)  
Date: 13 Jan 2005

Options

- Diabetes Programme
- Congestive Heart Failure
- Chronic Obstructive Pulmonary Disease
- Cardiovascular Diseases Risk

Access Risk

NHI: PRP4545  
Ethnic Origin: European/Pakeha NZ (1)  
Height: 187 cms  
Weight: 110 kg  
BP Systolic: mm Hg  
BP Diastolic: mm Hg  
Pregnant: Not Applicable  
Smoker: No  
Smoking advice?:  
Type of Diabetes: Type 2  
Flu Vac?:  
Flu Vac Date?:  
TC/HDL Ratio: 0.69  
IHD: Yes  
PTCA/CABG: No

Stroke/TIA: No  
Gen Lipid Disorder: Yes  
PVD: No  
Family Hx of CVD: Yes  
BMI: 31  
CVD Risk: %  
Age: 70 yrs  
Gender: M

OK and Send OK Cancel

# The Medtech Common Form Tool

**CCM SMITH Arnie (3263)**

Main | Diabetes | Diabetes ... | **CHE** | COPD | CVD | Chart | Documents | Audit | Parked

CXR+Congestion? Cr: 0.40  
CXR Date:  TFT:   
Echo Done?  K+: 5  
Date of Echo?: 05 Aug 2004 Beta Blockers?:   
Diastolic Dysfn?: No Ace Inhibitors?:   
LV Systolic Dysfn?: Mild ACE Type:   
Conges. Symptoms?:  ACE Strength?:  mg  
Pulse Rate:  ACE Dosage:   
Cause Hyperten?:  Diuretics?:   
Cause Ischaemic?:  Spironolactone?:   
Cause Valvul abno?:  Ferritin Done?:   
Cause Idiopathic?:  Care Plan Discuss?:   
Cause Alch induce?:  Particip. Status?:   
Cause Arrythmia?:   
NYHA Class: Class I

Outcome / Note  
Outcome:   
**QCHF**  
Note:

Recall  
Recall In:    
Provider: Sam Eaves (SFE)  
Note:

Inactive:  Park:  *4 months since last check*

OK and Send OK Cancel

# The Added Value of the “Past”

- Benefits
  - Collected chronic disease info (including diabetic)
  - Funded patient visits
  - Linked to Electronic Decision Support (EDS)
  - Generated reports for analysis and GP feedback
  - Significant roll out within Primary Care
- Issues
  - Data quality, client side validation basic and a batch process
  - Usability
  - Inflexibility, time consuming to get changes
  - Not all PMS's – Profile for Windows, Profile for Mac
- Review performed



# Stage 2 – The present

# IS Review - 2004

- Administration overhead was high by GP and server
  - Only partial validation at PMS, practices needed to apply resource to fix errors well after the consultation was complete
- Patient eligibility status was reported only monthly
  - In order for patients to be eligible for the programme they had to meet specific Clinical Entry Criteria for Funding. Criteria was not enforced by PMS, and ineligible patients were only identified monthly. Clinicians could miss out on funding
- No centralised error tracking at server
- Limited uptake by PMS Vendors
- Time consuming to modify programmes
- No real time Electronic Decision Support (advice was returned in the response – after the consultation was over)
- Wanted to offer infrastructure for smaller PHO's – eg. Get Checked & Care Plus data capture and reporting

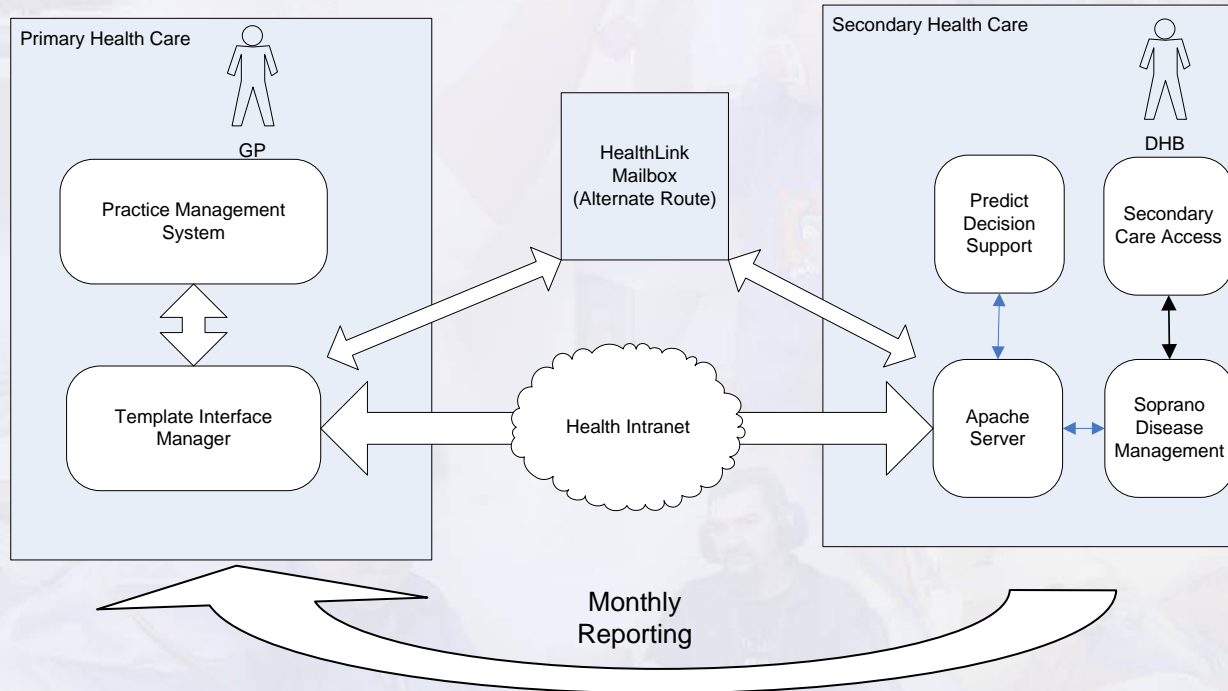
# Capturing Get Checked Information

- Some PHO's struggled to establish a robust database and reporting system for their Get Checked programme
- It was voluntary for Counties Manukau PHO's to use this CCM infrastructure
- Those PHO's who opt to use the CCM tools for their Get Checked programme receive:
  - The necessary reporting to pay providers and invoice the DHB
  - Have the mandatory MoH reporting completed for them
  - Have regular feedback reports on proxy patient outcomes (eg average change in HbA1c compared to the average etc). This is a feature that many Get Checked programmes do not have.
  - Have access to basic electronic clinical decision support which is also a feature that no other Get Checked programme has
- This solution will also encapsulate the Get Checked II dataset when available

# The Key Components of the Solution:

- The Template Interface Manager (TIM)
  - A user interface component developed by health Alliance using AJAX technologies, deployed at the Practice
  - Can be run either 'within' a PMS or directly from a Browser
- Open Source Server component
  - Apache/PHP server, server based validation (in addition to client based)
  - On-line (Health Network) & batch (Healthlink)
- Decision support
  - Both Predict and in-house
- Orion SDM as data repository
  - As before, but 'behind' Apache
- Secondary Care Access via Concerto
  - Allows clinicians in secondary care to view CCM Data
  - If patient attends EC, clinician is alerted
  - Using service based infrastructure (SOA)

# Architecture



# TIM – (making the right thing the easiest thing to do)

## Management

Funding Stream	CPlus and CCM	Provider		Date	11/07/2005
Participation Status		Outcome	Annual	Program Consent	Yes
Wellness Plan discussed	No	Management goals met	Recently enrolled		

## Assessment

Ischaemic Stroke/TIA	No	Smoker	No	Systolic BP	120
Type of Diabetes	Type 2	Smoking advice		Diastolic BP	80
IHD	No	Pregnant	Not applicable	Height	185
Genetic Lipid Disorder	No	Family History CVD	Yes	Weight	78
PTCA,CABG	No	Physical Activity		BMI	22.8
PVD	No	Green Rx	Yes	NHF Diet advice	No

## Medication

Aspirin	Yes	ACE Inhibitor	No	Statin	No
Clopidogrel	No	Beta-Blocker	No	Fibrate	No
Warfarin	No	Ca Channel Blockers	No	Other Lipid Lowering Drug	No
		Thiazide	No		
		Other Antihypertensive Meds	No		

## Lab

Fasting Total Cholesterol	6.1	HDL Cholesterol	1.1
Fasting Triglycerides	3.3	LDL Cholesterol	4.5
		TC/HDL Ratio	4.5

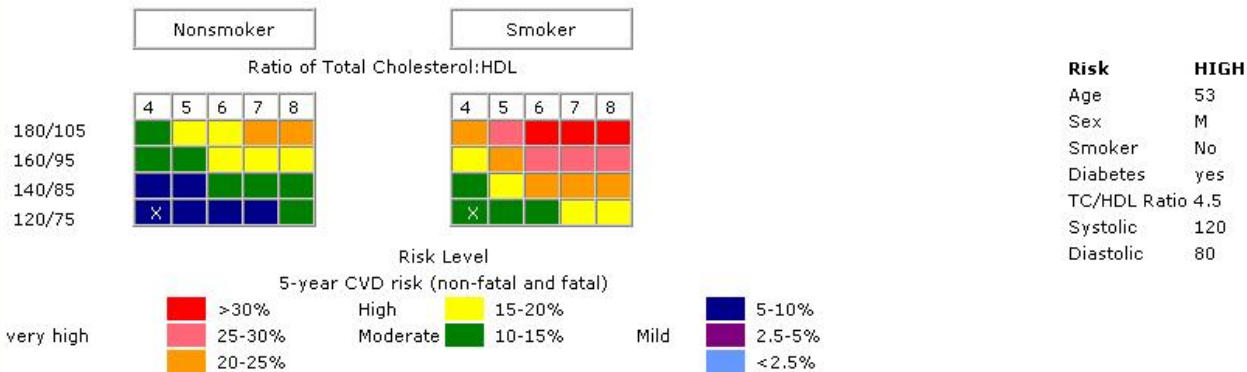
Lab Results  
Auto-populate

# Incorporating Best Practice Guidelines

Risk Recommendations Actions Patient Advice

## Risk Assessment

### Diabetic



# Key Technical Advantages of Solution

- On-Line (real-time) access
  - Across Health Network
- Remote Updating
  - (In practice not useful as PMS configuration required)
- Consistent User Interface across PMS's (MedTech, my Practice, Profile for Windows, Profile for Mac)
- Integrated with PMS
  - Both pre-population & storage of advice in PMS
  - Degree of integration varied with PMS
- Reduced requirements of PMS Vendor
  - We can implement program changes
- Use of Open-Source software

# Developing the Admin Tool

- To support 'user friendly' real-time error reporting, an Admin Tool was developed for DHB Support Staff and accessible by PHO's.
- Allows tracking of all messages received and/or rejected due to errors, by NHI, EDI account, NZMC and date
- Allows proactive monitoring and reallocation of support resources to practices having problems
- Web based with access for PHO's via the Health Network

# Admin Tool

## CCM Program Support functions

Copy Detail clipboard Print Det

Command	Details	Command	Details
Daily summary	Month <input type="text" value="Nov"/> Year <input type="text" value="2007"/> <input type="button" value="Show Summary"/>	Show Config	<input type="button" value="System"/> <input type="button" value="PHP"/>
NHI entries	NHI <input type="text"/> <input type="button" value="Log"/> <input type="button" value="SDM"/> Log Order Date	Dump last 100 records in the Access Log	<input type="button" value="Dump Log"/>
Provider entries	Code <input type="text" value="1"/> <input type="button" value="get Provider"/> Provider NHI Status Task Log ID MailBox	View Program error log	<input type="button" value="View Error Log"/>
Mailbox entries	Mailbox <input type="text"/> <input type="button" value="get Mailbox"/>	Show Programme Definition	<input type="text" value="CVD"/> <input type="button" value="Details"/>
SDM Errors	<input type="button" value="Show SDM Errors"/> ADM <input type="radio"/> CCM <input checked="" type="radio"/>		

## Summary of Daily Activity

Date	Normal	User Err	System Err	Both
2007-11-01	50	2	1	
2007-10-31	313	6	2	
2007-10-30	306	11	2	
2007-10-29	241	11	5	
2007-10-28	2	3		
2007-10-27	18	2		
2007-10-26	178	5		
2007-10-25	255	7	4	
2007-10-24	225	12	2	
2007-10-23	176	3		
2007-10-22	4			
2007-10-21	14			
2007-10-20	24			
2007-10-19	267	12	2	
2007-10-18	228	9	1	
2007-10-17	232	13	1	
2007-10-16	230	13	1	
2007-10-15	236	11		
2007-10-14	8			
2007-10-13	36	1		
2007-10-12	198	12	1	
2007-10-11	243	9		
2007-10-10	216	15	1	

# Admin Tool

## CCM Program Support functions

[Copy Detail clipboard](#)
[Print Det](#)

Command	Details	
Daily summary	Month <input type="text" value="Nov"/> Year <input type="text" value="2007"/>	<input type="button" value="Show Summary"/>
NHI entries	NHI <input type="text" value="ABC1235"/>	<input type="button" value="Log"/> <input type="button" value="SDM"/>
Provider entries	Code <input type="text" value="1"/>	<input type="button" value="get Provider"/>
Mailbox entries	Mailbox <input type="text" value="airoaks"/>	<input type="button" value="get Mailbox"/>
SDM Errors	<input type="button" value="Show SDM Errors"/> ADM <input type="radio"/> CCM <input checked="" type="radio"/>	

Command	Details
Show Config	<input type="button" value="System"/> <input type="button" value="PHP"/>
Dump last 100 records in the Access Log	<input type="button" value="Dump Log"/>
View Program error log	<input type="button" value="View Error Log"/>
Show Programme Definition	<input type="text" value="CVD"/> <input type="button" value="Details"/>
Download log entries for NHI=ABC1235	<input type="button" value="Download"/>

### Log entries for ABC1235

Date	Msg Date	NHI	Task	Provider	MailBox	Status	Comment	SDM Comment	Log ID	R
<a href="#">20071017:1333</a>	17-10-2007	ABC1235	ADEP	19868	reesrdmc	Ok			108494	x
<a href="#">20071017:0957</a>	17-10-2007	ABC1235	ADEP	19868	reesrdmc	Ok	The Date of Birth in the message (01/11/1985) does not match the Date of Birth in PIMS (16/11/1948)		108387	x
<a href="#">20070903:1311</a>	31-08-2007	ABC1235	ADEP	23867	suryntmn	Usr Err	The Date of Birth in the message (01/12/1983) does not match the Date of Birth in PIMS (16/11/1948)		101161	x
<a href="#">20070809:1636</a>	08-08-2007	ABC1235	ADC	7175	upsdell	Usr Err	STATUS changed to New enrolment. The Date of Birth in the message (13/04/1983) does not match the Date of Birth in PIMS (16/11/1948)		97180	x
<a href="#">20070731:1237</a>	06-07-2007	ABC1235	QDC	10755	mkaucyhc	Ok	Advice Only		95616	x
<a href="#">20070717:1731</a>	17-07-2007	ABC1235	ADC	20974	howkhssg	Ok	STATUS changed to New enrolment. Get Checked OnlyThe Date of Birth in the message (01/01/1950) does not match the Date of Birth in PIMS (16/11/1948)		93560	x
<a href="#">20070628:1116</a>	13-03-2007	ABC1235	QDC	164789	bairdshc	Ok	Advice Only		90821	x
<a href="#">20070509:1605</a>	09-05-2007	ABC1235	QDC	20833	farnorth	Ok	Advice Only		83780	x
<a href="#">20070403:1509</a>	03-04-2007	ABC1235	DIABETES	161193	sshldiab	Usr Err	This is a cancellation message, but this provider (161193) is not aligned to this patient.		79371	x
<a href="#">20070403:1509</a>	03-04-2007	ABC1235	DIABETES	161193	sshldiab	Ok	Advice Only		79370	x



# Sharing Data with Secondary Care

# What are the benefits to secondary care?

- The clinician is alerted that the patient is enrolled on the CCM programme
- Can access more detailed information via hyperlinks to individual data items (which can be charted over time).
- Feedback has been very positive in that secondary clinicians now know who is enrolled in CCM and what their clinical status is.
- They feel reassured that CCM patients are being intensely managed in the community and do not require intense secondary care based intervention
- Early consultation with clinicians meant there was minimal disruption to their workflow.
- Clinicians are not inundated with information.
- Instead they can access more and more detailed information as they require.

# Access to CCM Information via EC Whiteboard



Address <http://mmhcon22/concerto/Concerto.htm>

PRP1660, POWER, Cold Patient Summary

**CONCERTO**  
COUNTIES MANUKAU

wonga1  
Help  
Logout  
Concerto  
Users

Concerto UI  
Monitoring  
CCOW  
Soprano  
Whiteboard  
Patients  
Favourites  
MH Regional  
Document  
Approval  
Knowledge  
Resources  
Medical  
Records  
Personal  
Apps  
Home  
Autohide

**Patient Details**  
Information Available  

Patient: COLD POWER - PRP1660  
Male, DOB: 09/02/1943  
Ph: 1234367, 2a Washing Machine Lane, Pakuranga  
Dr Gary Sinclair  
Alternate Contact: Warm Power - Sister, Ph: 967-6543  
Allergies: No

DIABETES

Advises what CCM Programme the patient is on

Alerts						
Category	Description	Comments	Start	End	Critical	Active
Clinical Pathways/Guidelines	Unstable Angina		26 Dec 2001	31 Dec 2001	N	N
Clinical Pathways/Guidelines	Unstable Angina		15 Jun 2001	15 Jun 2001	N	N

ECC Activities						
Arrived date	TC	Presented with	Seen by	Speciality	Diagnosis	Discharge method
27 Feb 2006 10:47	2	Chest pain, r40		Acute Care Medicine		
02 Feb 2005 04:30	4			Emergency Medicine - ED		Discharge to Care of GP
10 Aug 2004 04:55	4			Emergency Medicine - ED		Discharge to Care of GP
09 Aug 2004 20:10	4			Emergency Medicine - ED		Self discharge - signed
06 Aug 2003 09:05	2	Chest pain		General Medicine		Admit to Ward
12 Jul 2002 00:37	3			General Medicine		Admit to Ward
08 Mar 2002 23:37	2	Palpitations, Shortness of breath, post cabg 14/1/02 with L) arm pain		General Medicine		Discharge to Care of GP
12 Feb 2002 21:28	3			General Medicine		Discharge - no follow-up required
03 Jan 2002 11:09	2	Chest pain		General Medicine		Admit to Ward
26 Dec 2001 22:39	2	Chest pain		General Medicine		Admit to Ward

# Sharing with Secondary Care

WER4568 ALLANSON, MARY (Female 12/03/1959 46 years)

CCM

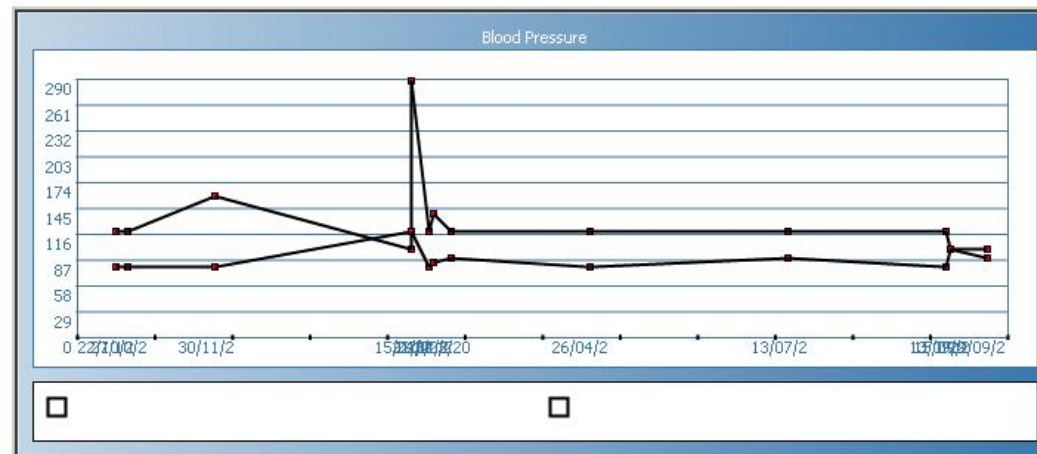
15:3

## CCM Summary

Programme	Current Status	Status Date	Date Last Visit
COPD	ACTIVE	22/10/2004	24/02/2005
CHF	ACTIVE	15/02/2005	15/09/2005
CVD	ACTIVE	29/09/2005	29/09/2005
OTHER	ACTIVE	30/11/2004	30/11/2004
DEP	ACTIVE	27/09/2005	6/10/2005

Standard charts for patient on these programmes

### Blood Pressure



# Overall Business Advantages

- Patients
  - Care Plans
  - Free visits
- Primary Care
  - Facilitating workflow and funding through feedback on entry criteria to the programme
  - Decision support and Structured data entry to empower nursing staff
  - Comparative Reporting
- Secondary Care
  - If patients attend EC, they are alerted that the patient is on a CCM programme
  - All secondary clinicians have access to CCM data
- DHB
  - Reporting
  - Overall improved health of population



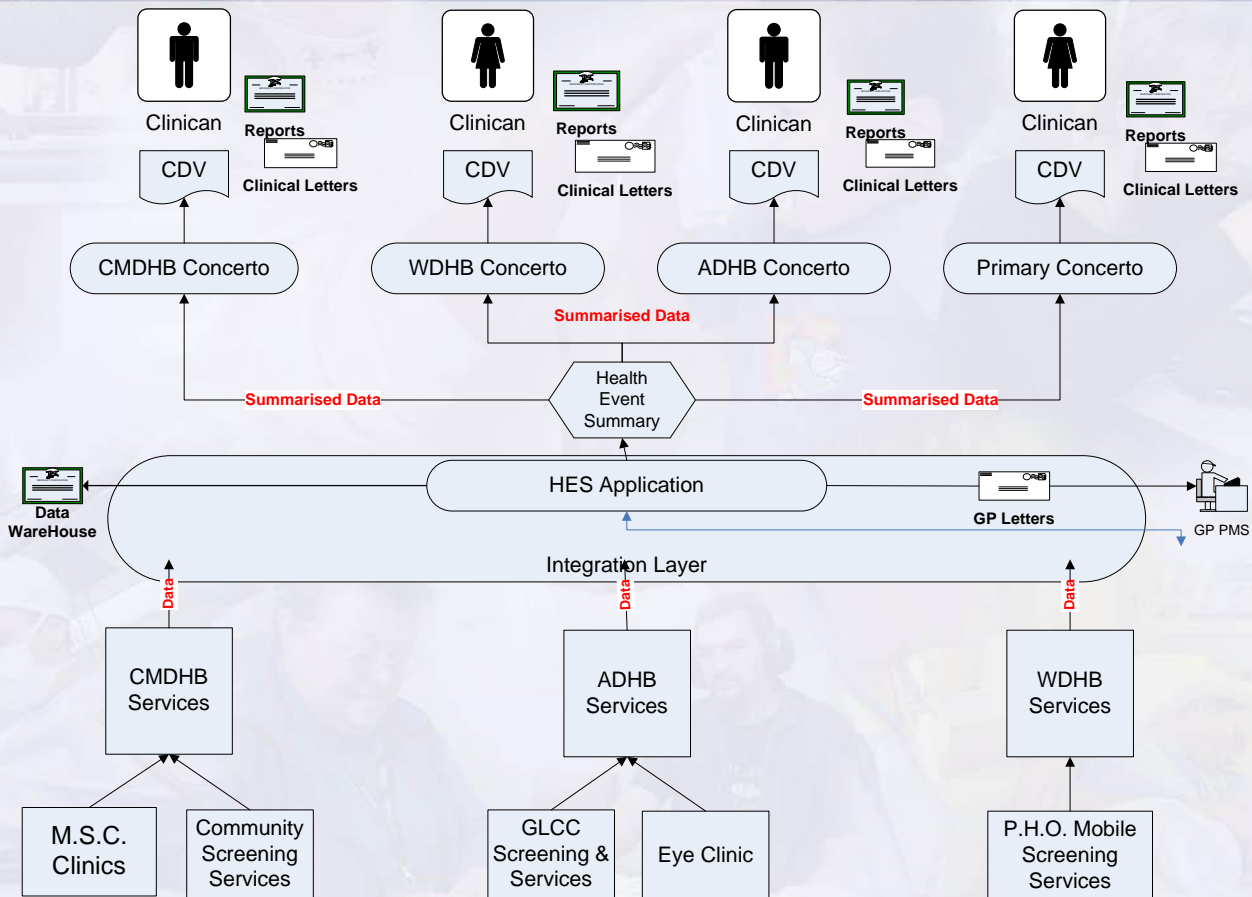
# IS Review - 2006

- Benefits
  - 85 of 101 practices using CCM
  - 250 GP's participating
  - Real time access to Electronic Decision Support
  - Reporting Get Checked and Care Plus patients for PHO's
  - All PMS systems in Counties Manukau can use CCM
  - 11000 patients enrolled
- Issues
  - Development and testing for multiple PMS system is resource intensive
  - Cost of on-site installation due to complex configurations
  - Cost of on-site support due to application architecture (client side components that business must support)
  - Increasingly complex reporting requirements
  - PMS upgrade breaks our systems we have to fix and deploy fixes
  - Lab code reporting

# Evolving environment

- CCM has been a trail blazer, but other areas are improving
- Primary
  - PMS functionality and integration abilities are improving – Advanced Forms, External Web Forms and new developments using .NET technology
- Secondary
  - Our internal Enterprise Architecture for clinical information is maturing
  - **Primary Care Concerto** deployed as part of Testsafe. Will allow secure primary care access to Secondary Care Data
  - **Health Event Summary (HES)** infrastructure (a component of the **Clinical Data Repository**) will provide a common repository for data that needs to be shared across the sector – nationally as well as regionally - and accessible through Primary Care Concerto (ultimately directly by the GP PMS)
  - **E-Referrals** from primary to secondary, building on the eReferrals system developed for Waitemata CVDIS
  - **Waitemata CVDD** project is also involved with collection of primary care data
- We want to take advantage of these to further improve care delivery and create an architecture which is sustainable and allows innovation to continue

# Regional architecture: eg Retinal screening



## The next 3 years for CCM....

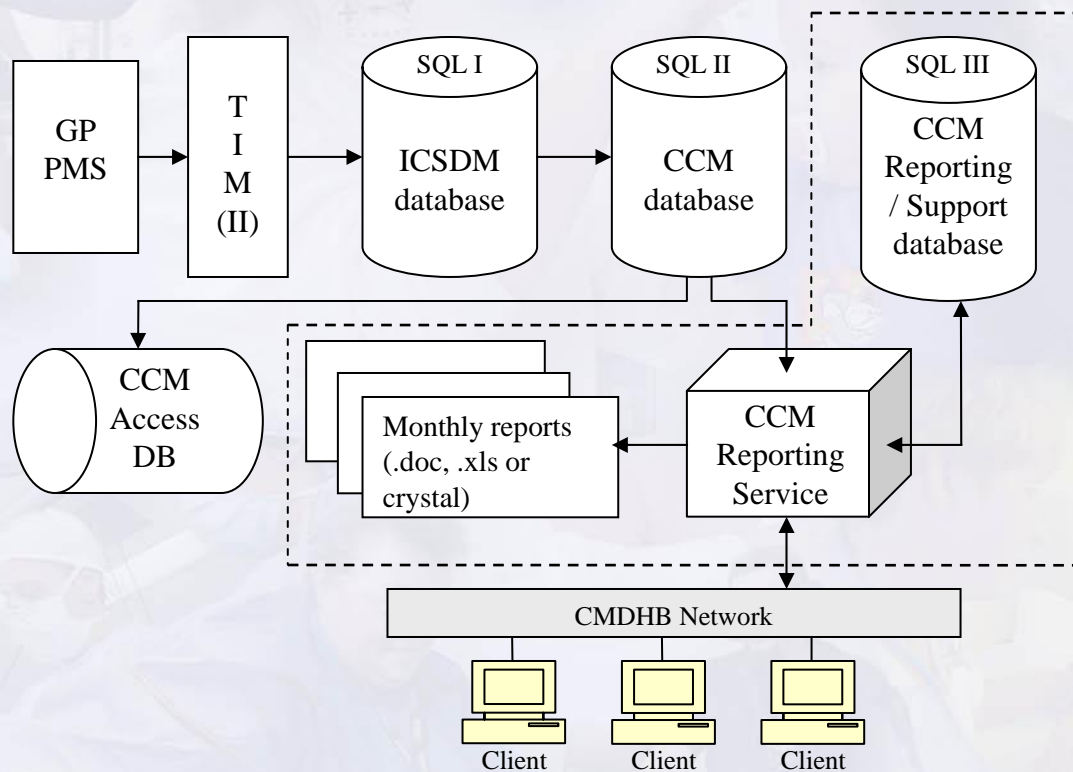
- Renal incorporated in CVD/Diabetes
- Acute Predict information to primary care
- Expansion of the programme through – Mental Health, Health of Older People
- Assessing the benefits of a generic module Long Term Conditions for Asthma, Gout & Arthritis
- Structured approach to managing Long Term Conditions
- Retinal Screening to primary care to support existing programmes
- Continue to improve information sharing between sectors
- Enhance Web based Reporting
- Advanced Care Planning
- Patient portal for Self Management Support

## Where to from here...

- Developing new architecture and transition plan
- Preferred supplier relationship with Enigma Publishing
- Refine our reporting even further to allow web based activity
- Increase access to HIN via SecurIT or SecurME
- Continued collaboration with PHO's regarding population overview
- Refined IT that enables good business process and good clinical care for patients with chronic disease in primary and secondary care



# Reporting Overview



# Reporting

- Monthly Funding Reports for DHB & each PHO
- Monthly reports on each module
  - DHB, PHO, Practice
- Monthly practice reports of:
  - Poor Attenders
  - Overdue Reports
  - Modifiable Risk
  - Clinical Exception
  - Patients eligible for CCM CVD Annual Review (similar to Get Checked)
- Monthly DHB reporting for various governance groups

# Poor Attenders

## CCM Poor Attenders for:

AAA Medical Centre

**Report Finish Date:** 30 Sep 2007

*A poor attender is a patient that has not had a visit in the 28 weeks prior to the period end.*

The new patients appearing will be highlighted.

### Dr. ABC

Patient Name	NHI	Start Date	Last Visit Date	Programme
JOHN SMITH	ABC1234	1 Nov 2006	1 Nov 2006	DIABETES
TESTF TESTL	DEF4567	13 Apr 2004	20 Feb 2007	DIABETES

# Overdue Reports

## CCM Overdue Patients for:

AAA Medical Centre

**Report Finish Date:** 30 Sep 2007

*An overdue patient is one that has not had a visit in 17 weeks prior to the period end date but has had a visit in the 28 weeks prior to the period end date.*

The new patients appearing will be highlighted.

### Dr. ABC

Patient Name	NHI	Start Date	Last Visit Date	Programme
JOHN SMITH	ABC1234	5 Mar 2007	30 May 2007	DIABETES
TESTF TESTL	DEF4567	1 May 2007	1 May 2007	OTHER

# Modifiable Risk

## CCM Summary - DM Modifiable Risk Factor Report

AAA Medical Centre

**From:** 01 Jul 2007      **To:** 30 Sep 2007

*This report includes patients with one of the following observations in the time period above.*

The new patients appearing will be highlighted.

Smoker? (Diabetes/COPD) = True  
BP Diastolic > 100  
BP Systolic > 180  
HbA1c > 10

<u>NHI</u>	<u>Patient Name</u>		<u>Opt on Date</u>	<u>Provider Name</u>	
ABC1234	JOHN SMITH		5 May 2006	Dr. ABC	
	<b>Obs:</b> Systolic BP	190	16 Jul 2007	Months on Programme:	14
DEF4567	TESTF TESTL		26 Oct 2005	Dr. ABC	
	<b>Obs:</b> HbA1c	11.4	5 Sep 2007	Months on Programme:	23

# Practice Feedback – Promote CQI

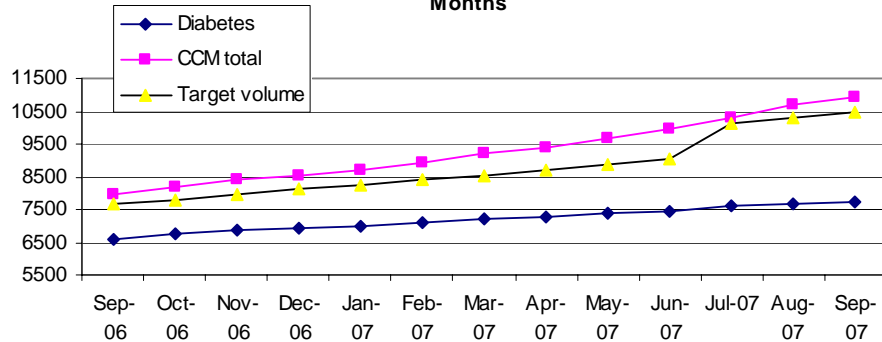
Clinical Indicators		First Visit		Latest Data		At 1 Year	
		Your patients	Your DHB	Your patients	Your DHB	Your patients	Your DHB
<b>HbA1c</b>	Maori	7.6	8.7	8.1	8.5	7.5	8.4
	Pacific I.	9.1	9.0	8.3	8.7	N/A	8.5
	<b>All</b>	<b>9.0</b>	<b>8.7</b>	<b>8.3</b>	<b>8.4</b>	<b>8.4</b>	<b>8.3</b>
<b>BMI</b>	Maori	43.1	36.5	43.1	36.3	42.5	36.3
	Pacific I.	35.0	34.9	35.3	34.9	35.5	34.7
	<b>All</b>	<b>35.0</b>	<b>34.1</b>	<b>35.3</b>	<b>34.0</b>	<b>35.6</b>	<b>34.1</b>
<b>SBP</b>	Maori	141.0	136.8	137.3	134.8	144.0	133.1
	Pacific I.	135.6	134.4	133.1	131.9	134.6	132.4
	<b>All</b>	<b>135.6</b>	<b>135.9</b>	<b>133.1</b>	<b>133.5</b>	<b>134.8</b>	<b>133.1</b>
<b>TC</b>	Maori	5.5	5.3	5.4	5.1	5.3	5.0
	Pacific I.	5.4	5.4	4.6	4.8	4.9	5.0
	<b>All</b>	<b>5.4</b>	<b>5.3</b>	<b>4.6</b>	<b>4.9</b>	<b>5.0</b>	<b>4.9</b>

# Making good information from good data

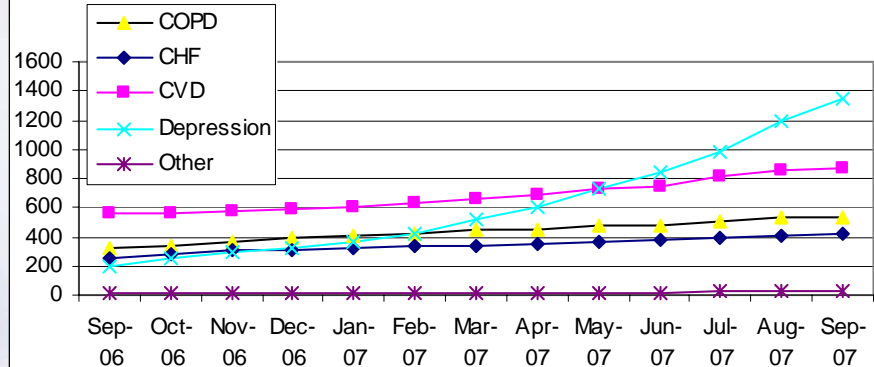
- PHO's in Counties Manukau allow sharing of clinical outcomes with DHB at named PHO level for CCM
- Reports of specific areas of interest are developed for Governance Groups including, the CCM Alignment Group and Clinical Governance Forum
- Ad hoc analysis on the CCM cohort to support PHO's, practices and research initiatives
- Case finding reports for primary care
  - Patients that qualify for FAMA (2 or more admissions for a condition to a adult medical ward for a total of 5 or more bed days in the last year)
  - Patients that have been discharged and diagnosed with CHF and qualify for CCM
  - Patients that have been discharged and diagnosed with CVD and qualify for CCM
- Primary care is data rich – in the future using this data in conjunction with DHB and census data to drive population and utilisation analysis which assists with service provisioning

# CCMAG report

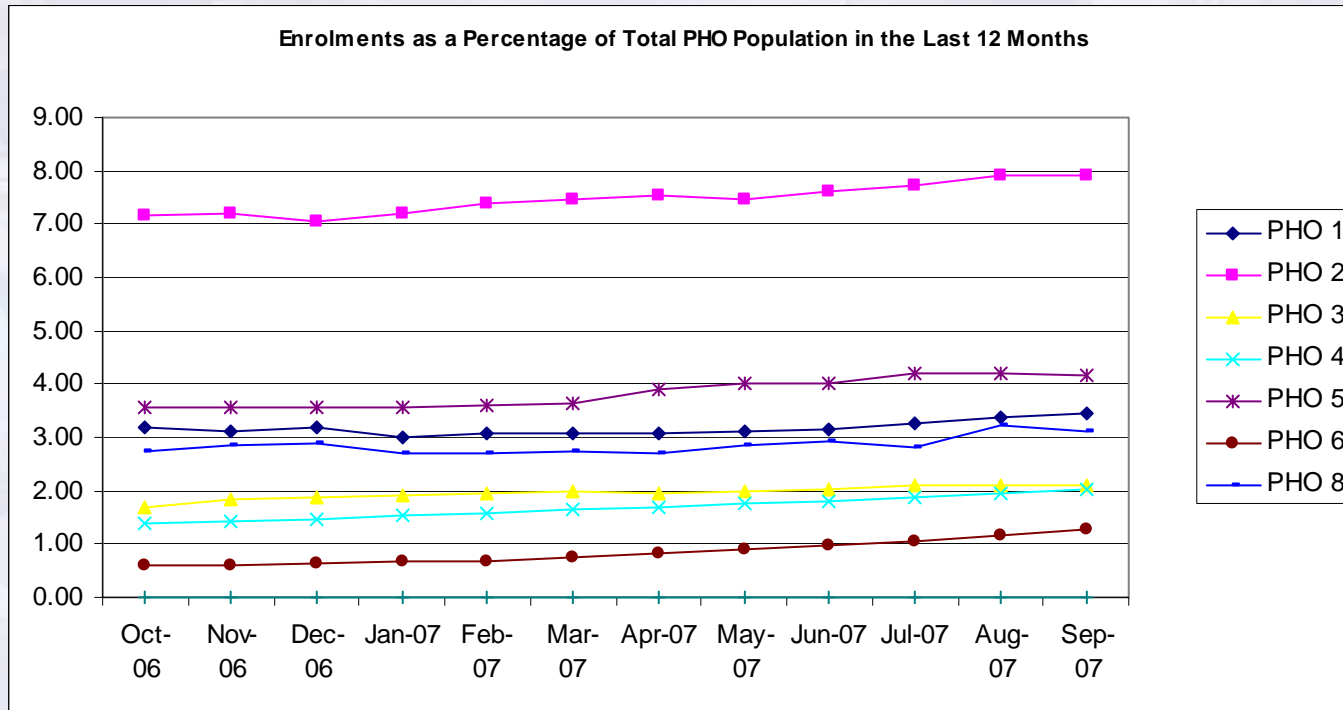
**Total CCM Enrolments, Diabetes Enrolments and Target Volumes Last 12 Months**



**Enrolments in Non-Diabetic Modules Last 12 Months**

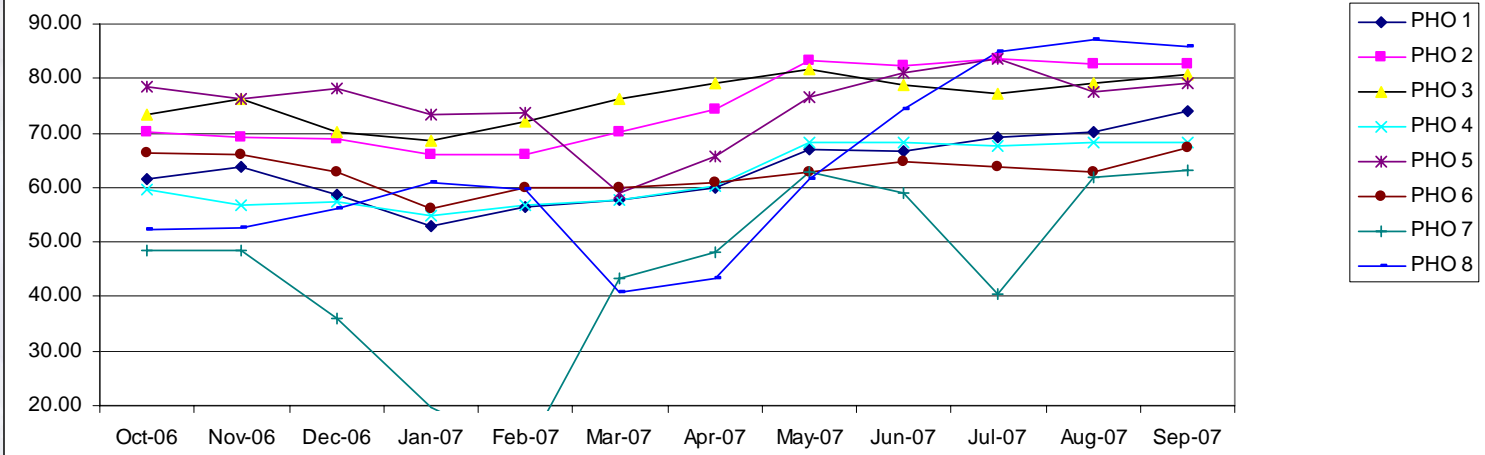


# CCMAG reports – Total CCM Enrolments as a % of PHO Register for that quarter



# CCMAG Reports

Percentage of people with 'Visits Up to Date' by PHO for Diabetes Module

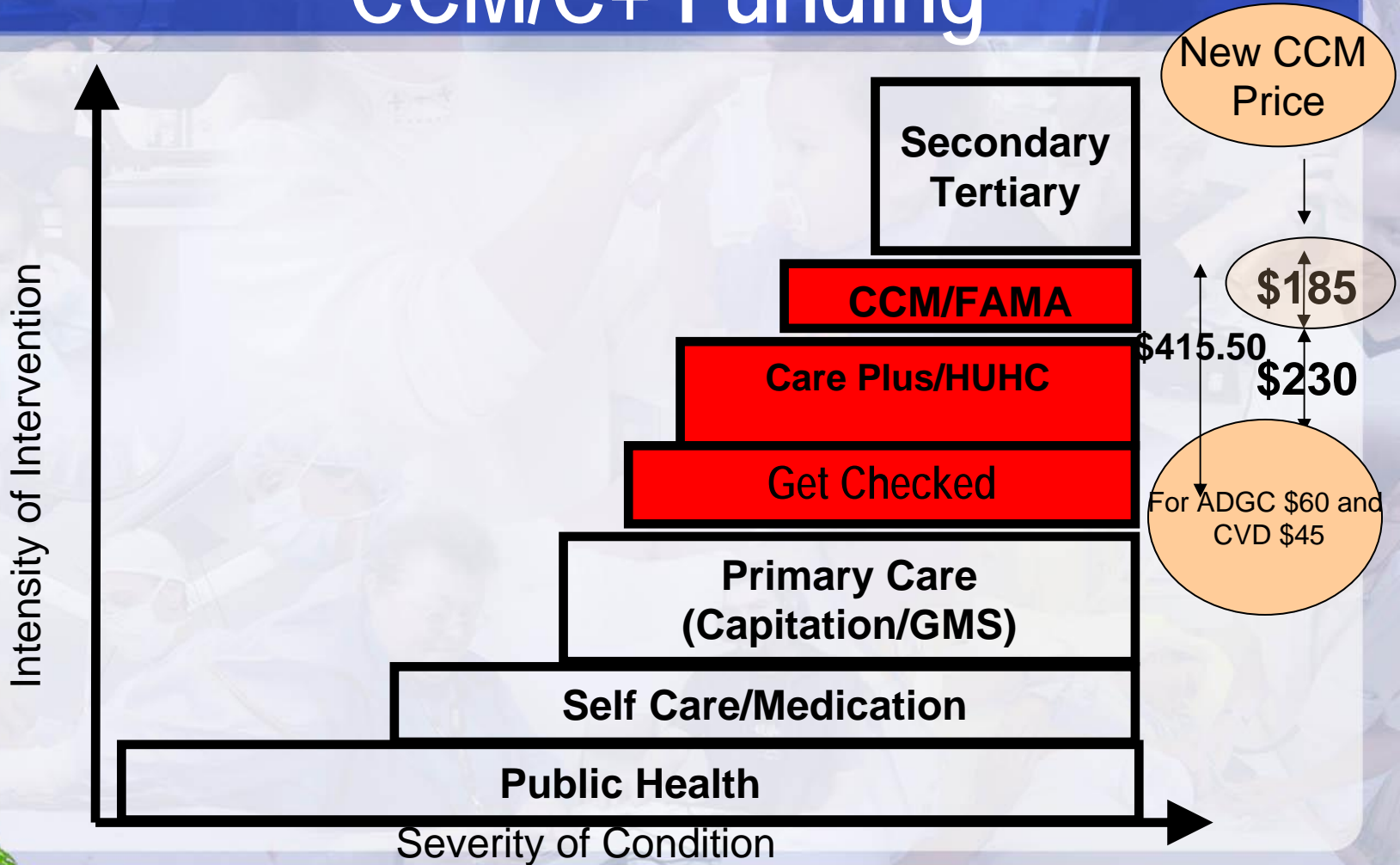




# Partnership

- Project Started:
  - 2001 – designed largely by Primary Care
  - Early evaluation demonstrated effectiveness and positive ROI
  - Wider roll out in 2003
- Now:
  - DHB staff: 0.4 Clinical Director, 1.0 project manager, 0.5 IT support, 1.0 Analyst.
  - Hospital – 2+ chronic care nurses. Help from 4 specialists
  - PHOs – 0.5-2.0 clinical programme managers in each
- Funding: \$2.1 m this year
- 11,309 patients currently enrolled (as @ Oct 2007)

# CCM/C+ Funding



# “Capitated Environment”

- Why did we change?
  - Reconciliation at practice level was becoming onerous for practices with large volumes
  - CMDHB are moving towards an ‘outcome based framework’
- How did we get to that price?
  - Agreed Bi annual pricing review with PHO’s
  - Review of all costs associated with running a Chronic Disease programme
  - Inflation adjuster in between pricing reviews
- What does it mean for practices:
  - If 90% of their patients meet ECF – we pay 100%
  - If 80% of patients are up-to-date with visits we pay 100%
  - Calculated monthly
  - No FFS reconciliation at patient level
  - Means they have a 10% buffer for patients that don’t qualify for CCM
  - Compensation for time that is spent reaching hard to reach patients.

# Funding for the future

- Paying for outcomes – our Strategic Direction
- Population health changes
- Modelling for teams
- Streamlining the approach for DHB, PHO's, Primary Care
- Accountability for all:
  - DHB
  - PHO's
  - Practices
  - Patients



# A focus on high clinical needs

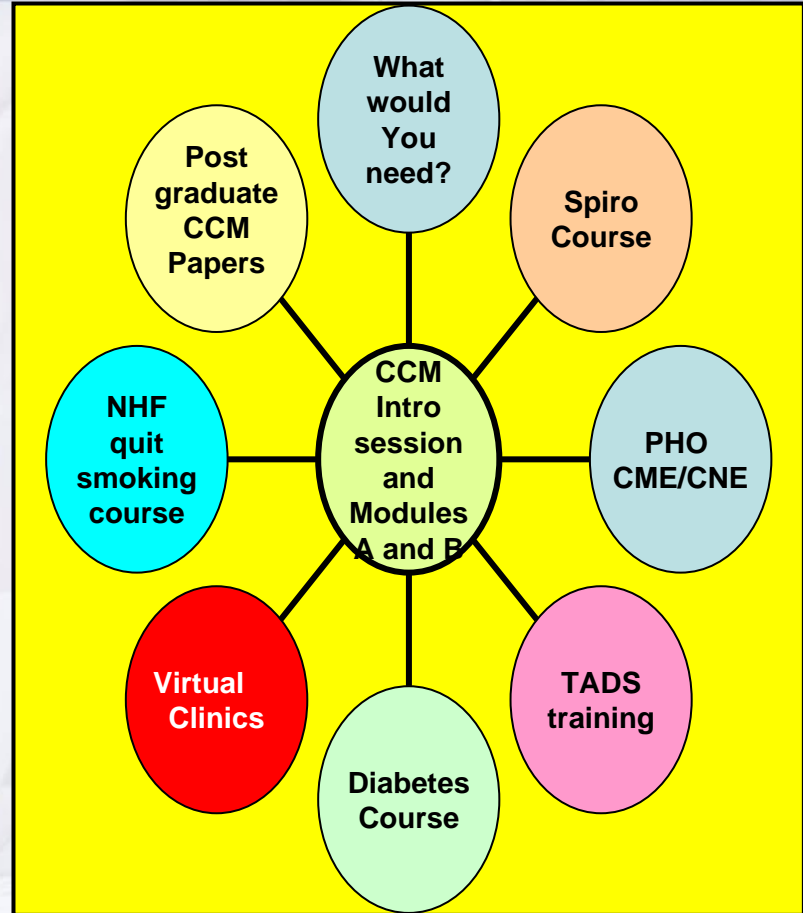
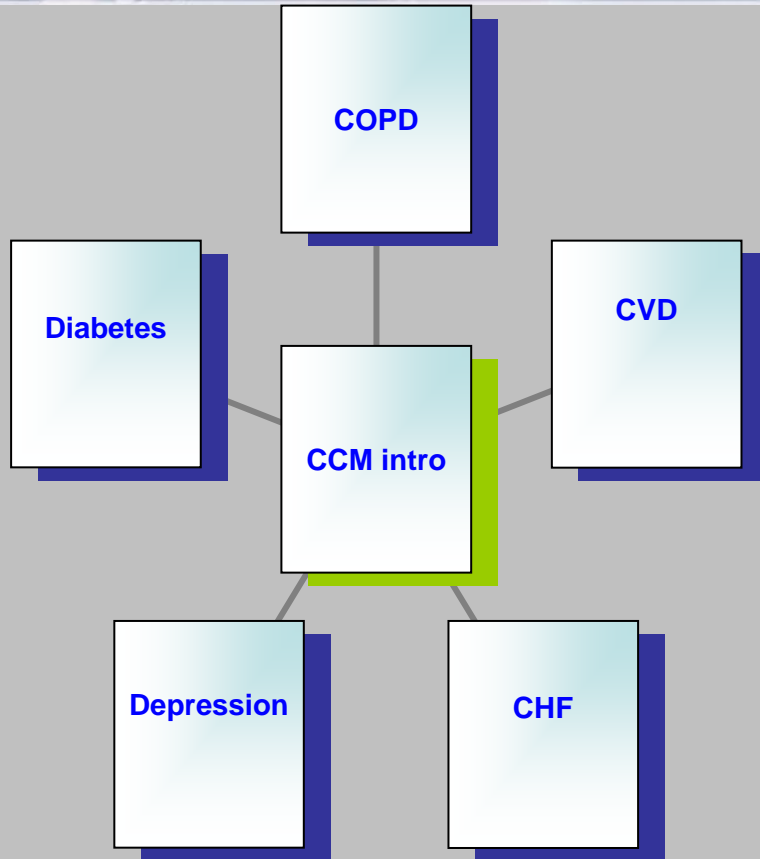
DIABETES	CHF	COPD	CVD
<p><b>Diabetes</b></p> <ol style="list-style-type: none"> <li>HbA1c &gt; 9</li> <li>BP &gt; 160/90</li> <li>Total cholesterol &gt; 6</li> <li>Smoker</li> </ol> <p><u>OR</u></p> <p>5. <b>DIABETES</b> and 1 of:</p> <ul style="list-style-type: none"> <li>High cholesterol</li> <li>Nephropathy</li> <li>Visual impairment</li> <li>retinopathy</li> <li>CVD event</li> <li>Previous admission CHF</li> </ul>	<p><b>CHF</b></p> <ol style="list-style-type: none"> <li>Hospital Admitted with the last 12 months</li> </ol> <p><u>OR</u></p> <ol style="list-style-type: none"> <li>Systolic or Diastolic dysfunction on ECHO</li> </ol> <p><u>OR</u></p>	<p><b>COPD</b></p> <p>Diagnosis of COPD</p> <ol style="list-style-type: none"> <li>Smoking history of 10 or pack years</li> </ol> <p><u>OR</u></p> <ol style="list-style-type: none"> <li>Spirometry with FEV1 &lt;40% of predicted</li> <li>Spirometry with FEV1 between 40%-60% of predicted</li> </ol>	<p><b>CVD</b></p> <p>Previous CVD event (MI/Angina/CABG/PTCA/Stroke/TIA/PVD) or CVD equivalent (Diabetes/Glucose intolerance)</p> <p><u>AND ONE OF:</u></p> <ol style="list-style-type: none"> <li>BP &gt; 150/90</li> <li>Current smoker</li> </ol>
<h2>Entry criteria</h2>			
<p><b>KPI</b></p> <ol style="list-style-type: none"> <li>No patients HbA1c &gt; 10% <u>AND</u> duration diabetes &gt; 5 years <u>AND</u> not on insulin</li> <li>Patients with LDL &gt; 2.6 <u>AND</u> not on a statin</li> <li>Patients with BP &gt; 130/85</li> <li>Number of smokers</li> </ol>	<p><b>KPI</b></p> <ol style="list-style-type: none"> <li>% patients with Echo documented dysfunction</li> <li>% patients on ACE or documented contra</li> <li>% patients with ACE at &gt;50% of target dose or dose increased from baseline</li> </ol>	<p><b>KPI</b></p> <ol style="list-style-type: none"> <li>No. of patients with spirometry</li> <li>No. of smokers</li> <li>No. patients annual flu vac</li> <li>No. on inhaled steroids</li> <li>No. on regular oral steroid</li> </ol>	<p><b>KPI</b></p> <ol style="list-style-type: none"> <li>Number Quarterly checks</li> <li>% patients LDL &gt; 2.5</li> <li>% patients on statin</li> <li>% patients BP &lt; 140/85</li> <li>Number non smokers</li> <li>Change in BMI</li> <li>% patients on aspirin</li> <li>% post MI patients on Beta Blockers</li> </ol>
<h2>KPIs</h2>			
<p>in Class III or IV or doc contraindication</p>			

# Overall aims of CCM Education

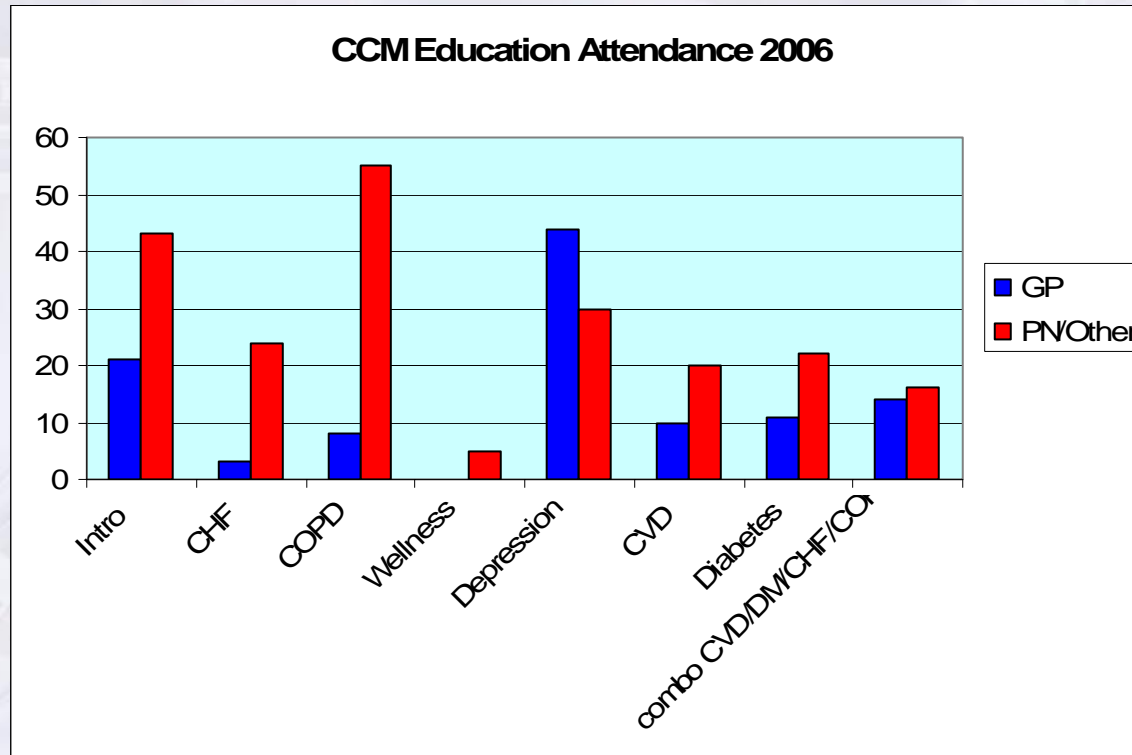
- Support a patient centered approach to clinical practice
- Promote and develop a prepared proactive practice team
- Promote the development of health care teams whose skills are valued and used effectively
- Use appropriate assessment tools to support clinical decision making as evidenced by comprehensive documentation in PMS system
- Show awareness of health beliefs and misconceptions within patients own cultural identity and develop strategies to discuss misconceptions while supporting the patients cultural identity.
- Reduce the stigma of long term conditions

# Ongoing CCM education

Book through your PHO



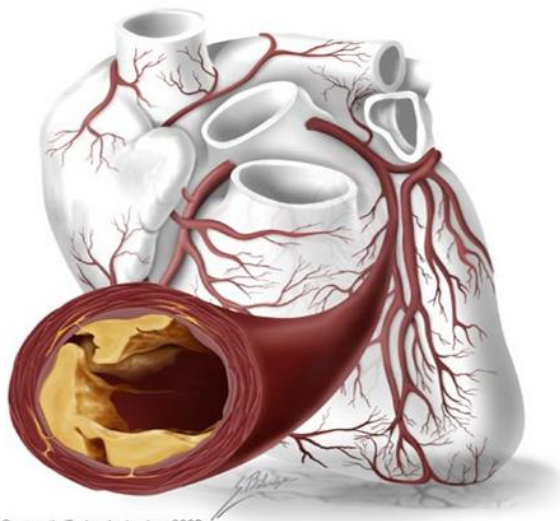
# 2006 training results....



A total of 330 attendees from across the CMDHB PHO's were identified as having attended a session (many attended more than one session throughout the year).

# Workbooks

COUNTIES MANUKAU DISTRICT  
HEALTH BOARD



© Concepts Technologies Inc. 2003

**Secondary Prevention of Cardiovascular Disease.**  
**Chronic Care Management Programme 2003-2004.**  
**A Workbook for Primary Care Providers**

COUNTIES MANUKAU DISTRICT  
HEALTH BOARD

*A Community Partnership*

# Workbooks cont'd....



**The Chronic Obstructive Pulmonary Disease  
Workbook  
CCM Practice Team Education Modular Course**

# Secondary outreach

- Nurse specialists for each CCM Module
- Virtual clinics with Secondary care
- Outreach
- On call assistance from Secondary Care Champions in the Disease Modules – eg. Cardiologist, Endocrinologist, Respiratory Physician
- Nurse Specialist clinics –e g Spirometry



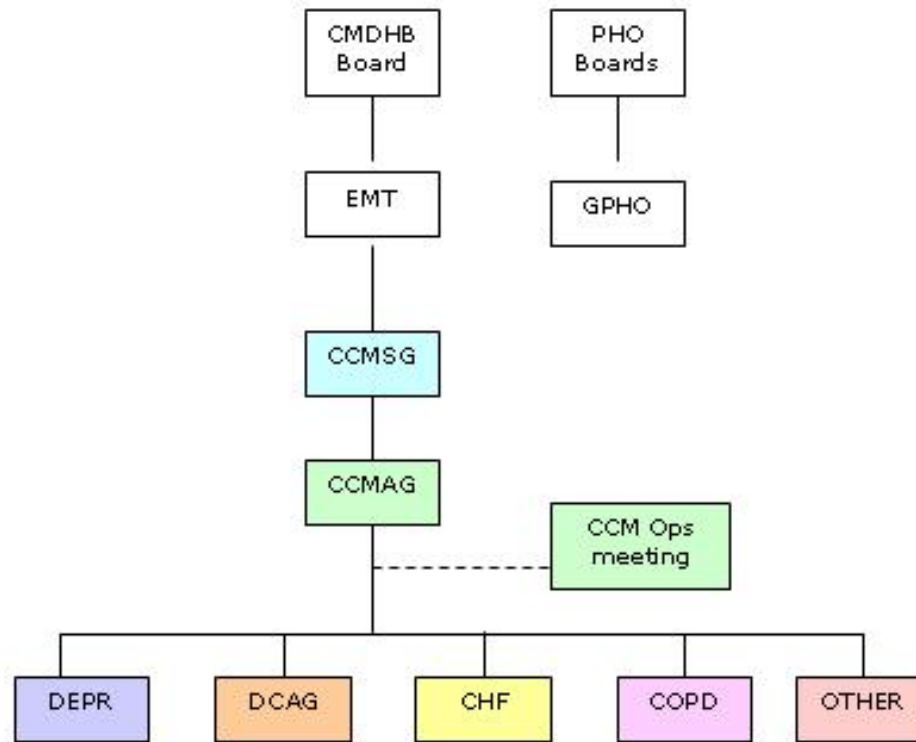
# Who decides and how we decide?

# Governance Structure

- Joint clinical and operational decision making on programme adaptations by primary and secondary care clinicians, and managers including Maaori, Pacific and Primary Care Nursing representation at all levels
- Input from consumer representatives
- Funding implications negotiated transparently with PHO's and DHB
- Monthly reporting on clinical and operational issues and trends for various governance groups

# Governance Structure

Diagram 1: Programme Governance





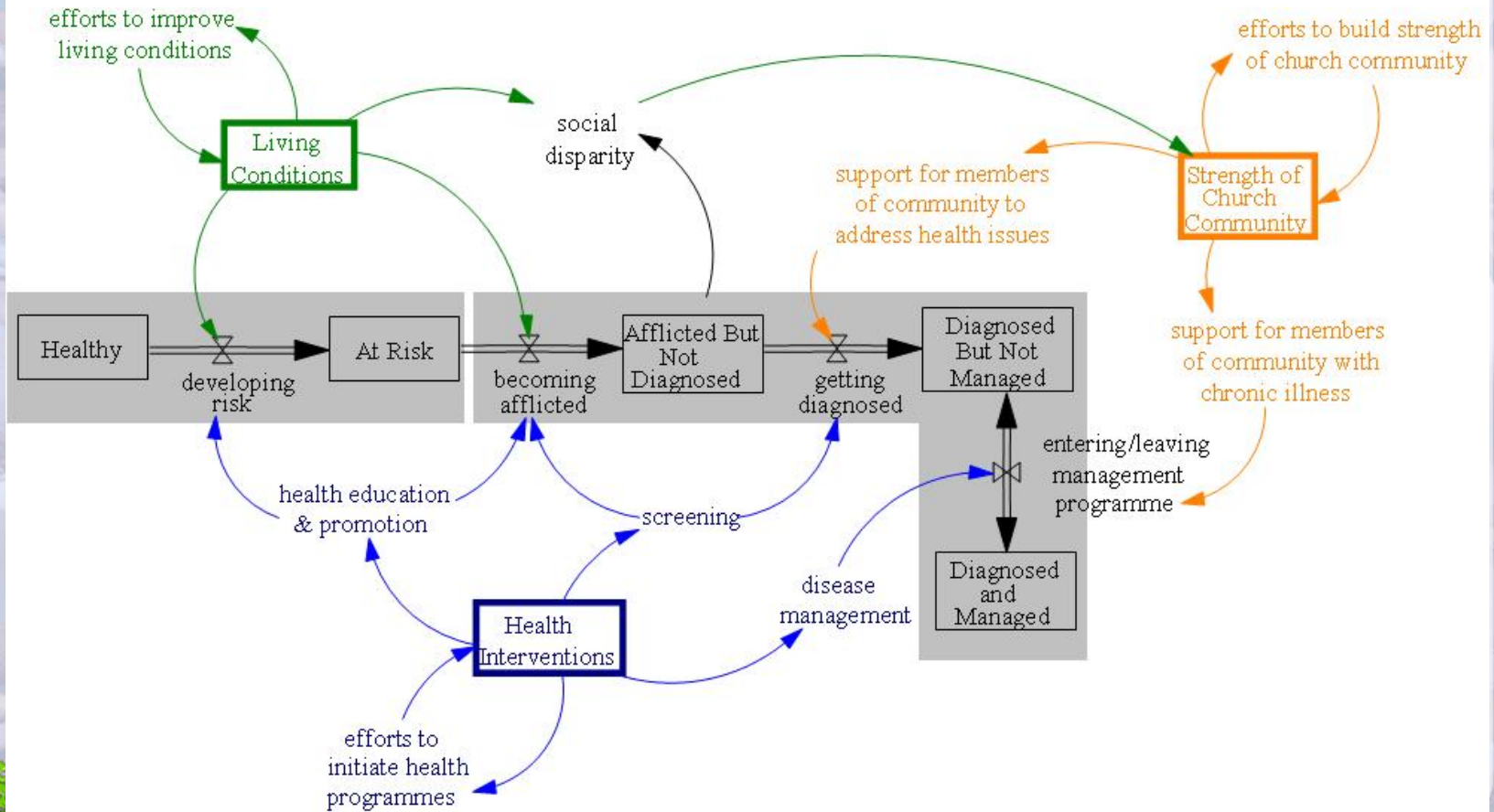
# Supporting the programme

# Support = Time & \$

- You need a co-ordinated approach, you cannot be fragmented
- Change Management support:
  - Cost of being on the ground to support
    - IT
    - Group Training
    - One on one training
    - Follow up – numerous visits required
    - Clinical training – one on one is better
    - Assistance with reconciliations of FFS for CCM at practices
- Behaviour Change Management
  - Use IT or lose IT assists in behavioural changes
- Significant Capital Investment required
- Real time investment for upstream health gains



# A high level systems approach...





# Lesson's Learnt & Key Messages

# Critical Success Factors

- Primary/Secondary Partnership
  - Joint Governance
- Leadership - Chief Executive level!
  - Evidence based
  - Appropriate Reporting
  - Sustainable Resourcing/funding
- **Clinical Champions at a Secondary and Primary care level**
- Change management methodology

# Lessons Learnt

- **What we recommend to others**

- Multidimensional approach – not just one initiative (CCM, FAMA, POAC, etc.)
- Team approach – within practices and between primary and secondary
- IT support so processes and outcomes are easily measured and tracked over time
- Don't expect saved bed days for diabetes within the short term
- Use of Community Health Workers for patient engagement
- Continued promotion important

**“If you can't measure it – you can't manage it!”**

# Lessons Learnt ...

- **What we will do differently moving forward:**
  - Greater emphasis on supporting patients self management
  - Earlier and greater focus on training (Clinical – nurses; I.T.)
  - More help to practices to improve their systems
  - Greater use of reports for quality improvement (Implementation of Clinical Governance at provider level)
  - Ensure better access to diagnostics in the earlier stages - (ECHO/Spirometry)
  - ? Further financial incentives for outcomes
  - Capacity of Sector - rate limiting step
  - Changing the model of care so IT is one of the key enablers

# Take Home Messages....

- A Chronic Disease programme does make a difference to patients lives
- Positive Health Outcomes DO come down the track
- Chronic Disease programmes DO create teams
- Enable integration between sectors
- IT when marketed positively it creates behaviour change
- They take time and serious capital investment

BUT

**They do make a difference!**

# Acknowledgements

- The CCM Programme would not exist without the hard work done on the ground by:
  - GPs
  - Nurses
  - Community Health Workers
- Those behind the scenes who provide the support to make this happen:
  - All CMDHB PHO's – Procure Network Manukau, Te Kupenga o Hoturoa, Ta Pasefika, Total Healthcare Otago, East Health, Mangere Community Health Trust, Tamaki PHO
  - Those who champion the programme throughout the DHB
  - healthAlliance IS Team
- The vendors involved:
  - MedTech
  - Next Generation
  - Intrahealth
  - Health Link
  - Orion Systems
  - Enigma Publishing

