Disease Management Programs; Reviewing the Evidence

2004

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Funded by DHS Victoria Hospital Demand Management

Disease Management Programs for COPD and CHF.

- Development of evidence-based guidelines for service development for clients with COPD and CHF who are at HIGH RISK of admission to acute care.

Chronic Condition

Well Population	At Risk Population	Established disease	Controlled chronic disease
I° Prevention	2° Prevention	Disease management and 3° prevention	
Prevent Incident disease	Prevent progression to established disease	Prevent acute exacerbations	Optimise HRQoL
Promote healthy behaviours	Screening, case finding, periodic health examinations, control risk factors	Treatment Manage complications	Continuing care Maintenance Rehabilitation Self- management
Public health Primary care Other sectors	Primary care Public health	Specialist services Hospital care Primary care	Primary care Community care
Health Promotion	Health Promotion	Health Promotion	Health Promotion

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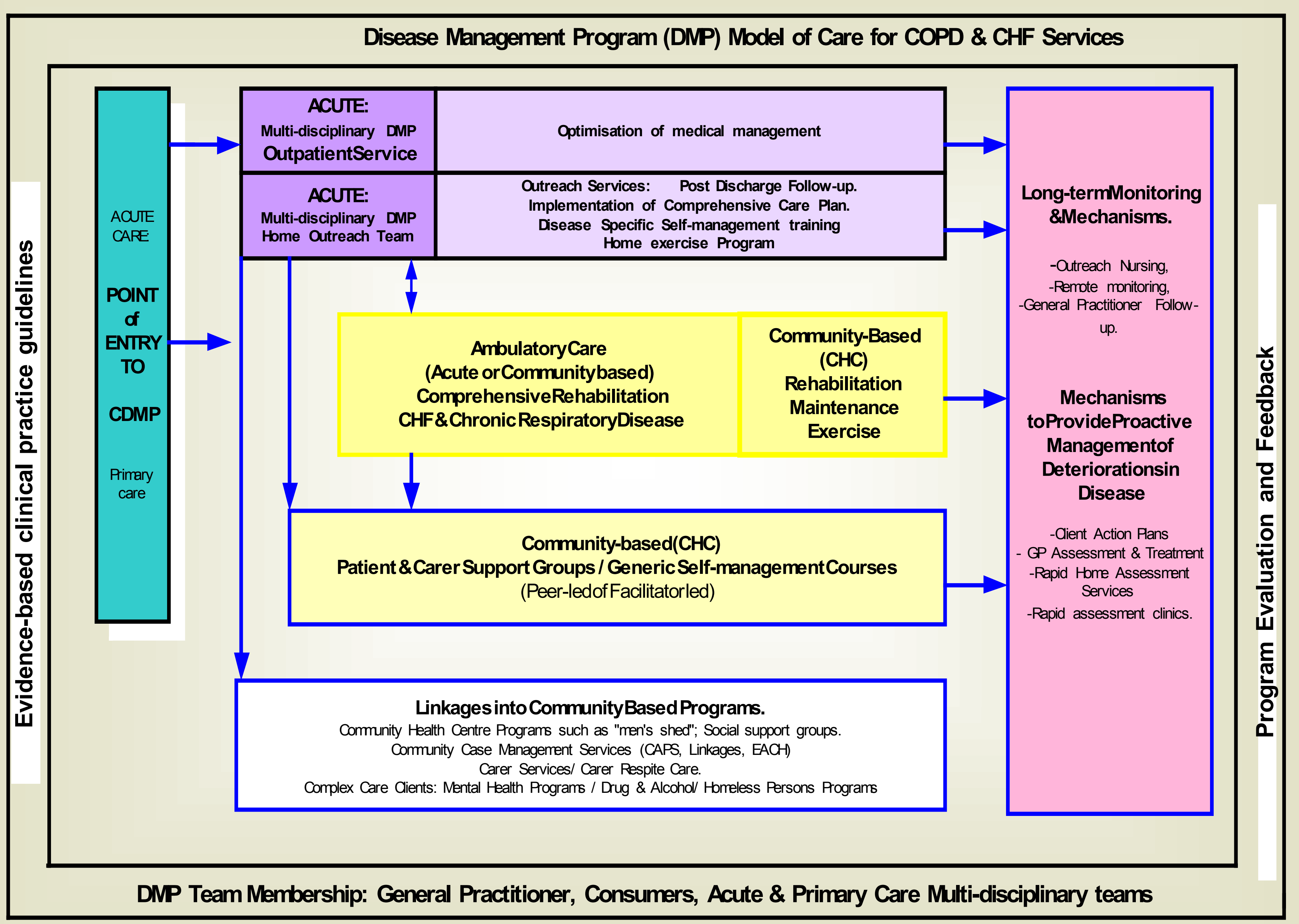
Models of Care

Key Components.

- Multi-disciplinary disease management clinics.
- Outreach Services.
- Comprehensive rehabilitation programs.
- Social support services.


Disease Management Program (DMP) Model of Care for COPD & CHF Services
Evidence-based clinical practice guidelines
ACUTE CARE
POINT of ENTRY TO CDMP
Primary care
ACUTE: Multi-disciplinary DMP OutpatientService
Optimisation of medical management
ACUTE: Multi-disciplinary DMP Home Outreach Team
Outreach Services: Post Discharge Follow-up.
Implementation of Comprehensive Care Plan.
Disease Specific Self-management training
Home exercise Program
AmbulatoryCare (Acute orCommunitybased) ComprehensiveRehabilitation CHF&Chronic RespiratoryDisease
Community-Based (CHC) Rehabilitation Maintenance Exercise
Community-based(CHC)
Patient&Carer Support Groups / Generic Self-management Courses
(Peer-ledof Facilitatorled)
Linkages into Community Based Programs.
Community Health Centre Programs such as "men's shed"; Social support groups.
Community Case Management Services (CAPS, Linkages, EACH)
Carer Services/ Carer Respite Care.
Complex Care Clients: Mental Health Programs / Drug & Alcohol/ Homeless Persons Programs
Long-termMonitoring &Mechanisms.
-Outreach Nursing,
-Remote monitoring,
-General Practitioner Follow-up.
Mechanisms toProvideProactive Managementof Deteriorationsin Disease
-Client Action Plans
- GP Assessment & Treatment
-Rapid Home Assessment Services
-Rapid assessment clinics.
Program Evaluation and Feedback
DMP Team Membership: General Practitioner, Consumers, Acute & Primary Care Multi-disciplinary teams

Levels of Evidence for Evaluating Clinical Research Data

The Australian National Health and Medical Research Council's levels of evidence

Level	Type of Evidence
I	Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)
II	Evidence obtained from at least one properly designed RCT
III –1	Well designed controlled trials without randomisation
III –2	Well designed cohort or case control analytic studies.
III –3	Multiple time series with or without the intervention.
IV	Based on clinical experience, descriptive studies or reports of expert committees.

Multi-disciplinary Clinics for CHF

Do MD Clinics for CHF improve patient outcomes?

Level II evidence.		✝			

Optimization of Pharmacotherapy (up- titration of Medications to Optimal Doses) **Level of Evidence III-3**

Decreases Mortality **Level of Evidence II**

Decreases Health Care Utilization **Level of Evidence II**

Multi-disciplinary Clinics for CHF

Do MD Clinics for CHF patients prolong survival?

Level II evidence. ✝

MDC v Physician **Azevedo, et al (2002)**	Mortality Intervention	Mortality Control	Statistical Sign
First Month	**8.3%**	**25.8%**	OR 0.23 (CI 0.12-0.46.)
21 Months	**24.8%**	**34.6%**	Adj HR 0.52 (95% CI 0.34-0.81)
Caponella, S. et al (2002). 12 Months	**2.7%**	**17.2%**	**Relative Risk reduction** 0.17 (0.6 – 0.66) P < 0.0007

Multi-disciplinary Clinics for CHF

Do MD Clinics for CHF decrease acute health care utilisation?

Level II evidence.

✝

Caponella	Outpatient	Control	St. Sign.
Re-Admission (RA)	13	78	$P < 0.00001$
McDonald	**Outpatient**	**Control**	**St. Sign.**
Combined death or RA	7.8%	25.5%	$P = 0.04$.
Doughty	**Outpatient**	**Control**	**St. Sign.**
Combined Death or RA	68	61	$2P = 0.33$
Kasper	**Outpatient**	**Control**	**St. Sign.**
Combined Death or RA	50	62	$P = 0.09$
Akosah	**Outpatient**	**Control**	**St. Sign.**
Time to first event readmission Or death over 90 days	10%	30%	$P < 0.018$
Time to first event readmission or death at 12 months	21%	43%	$P < 0.02$

Outreach Programs

Interventions:

- Transitional Care
- Early-supported Discharge
- Intensive Post Discharge Support & Follow-up
- Long-term Community Management by Disease Specialist Team.
- Home Physiotherapy & Rehabilitation Programs.

Transitional Care Interventions for CHF Clients					
Do discharge planning interventions improve clients' clinical outcomes in CHF?					
Level 1 Evidence.					

Systematic Review of Discharge Planning Interventions. Phillips CO (2004)

Outcome: Mortality

Relative Risk Reduction for intervention groups; RR 0.87; 95% (CI 0.73-1.03).

Nurse-led Outreach Programs for CHF

Do nurse-led outreach programs prolong survival for CHF clients?

Level II Evidence.					

4.2 year follow-up. (Stewart & Horowitz, 2002)

Intervention: Mortality 56%

Survival Time Average 40 months IQR (26-54)

Control: Mortality 65%

Survival Time Average 22 months IQR (11-33)

P = 0.056

Nurse-led Outreach Programs for CHF

Do nurse-led outreach programs decrease acute health care utilisation for CHF clients?

Level II Evidence.					

3 RCT demonstrated decreased readmissions for patient enrolled in Outreach programs.

1 RCT found no difference for nurse outreach alone, but decreased re-admissions for combination of nurse and cardiologist management over usual care.

1 RCT no difference between groups.

Home Outreach Programs for CHF

Stewart & Horowitz 2002 Time to event Re Admission (RA) or death	7 Months (IQR 2-21).	3 Months (IQR 1- 15)	P < 0.05
Rate of Unplanned Re-Admit	0.17 / pt / month	0.29 / pt /month	P < 0.05
Krunholz, HM et al. (2002) Rate of Multiple Re-Aadmit	49	80	P = 0.06
Laramee AS et al (2003) **90 Day Re-admission**	37	37	NS
Combined Nurse & Cardiologist	2 %	14%	P = 0.03
Hodgen RK (2002) Re-Admission	8%	18%	NS

Outreach programs for COPD Clients

COPD Discharge Planning AND Post Discharge Follow-up Visit:

Does Discharge planning improve COPD clients' quality of life, clinical outcomes and utilisation of acute health care?

Level II Evidence Negative for Re-admission					

Post Discharge Follow-up Visits Discharge Planning and Post Discharge Home Visit for COPD (Visits at 1 and 4 weeks).

Decrease Health Care Utilization: No difference between groups

Quality of Life and Consumer Satisfaction.

Effective discharge planning and short-term follow-up **improves client quality of life, activity levels, client & care-giver satisfaction.**

Outreach programs for COPD Clients

COPD Discharge Planning AND Post Discharge Follow-up Visit:

Egan (2002) RCT	Intervention	Control	Statistical Significance	Level of Evidence
Unscheduled Readmits	2.1	2.6	NS	II

Client & Carer Satisfaction	Decreased anxiety Increased access to community resources	High rates of client & carer sense of hopelessness.	Qualitative analysis	
Hermiz (2002) RCT	**3 Month Follow-up**	**3 Month Follow-up**	**Statistical Significance**	**Level of Evidence**
Unscheduled Readmits	16 (24%)	14 (18%)	NS	II
ED attendances	2	8		

COPD Outreach; Intensive Post discharge follow-up for 1 month

Neff (2003)[5] RCT	Intervention	Control	Statistical Significance	Level of Evidence
Length of Stay in Home Care	24.4 days	32.2days	T= 2.0 P < 0.05	II
Unscheduled Readmits	4	11	Chi2 = 4.471 P < 0.05	II
ED Attendances	5	16		
Discharged from Home Care & Remained Home (Not requiring High acuity care)	34 (83%) of patients	20 (51%) of patients	Chi2 = 9.07 P < 0.05	II

COPD; Early supported discharge & Hospital in the Home

Murphy (2002) Early Discharge	**Pre**	**Post**	**Statistical Sign.**	**Level of Evidence**
Length of Stay	**10 days**	**2.4 days**		III-3
Hernandez (2003) HITH Vs Inpatient	**HITH 8 week follow up**	**Inpatient 8 week follow up**	**Statistical Sign.**	**Level of Evidence**
Length of Stay	1.7 (+/- 2.3) days	4.2 (+/- 4.1) days	P < 0.001	II
Mortality	4.1%	6.9%		
Readmissions	0.24 (+/- 0.57)	0.38 (+/- 0.70)		
ED Attendances	0.13 (+/- 0.43)	0.31 (+/- 0.62)	P = 0.01	**II**
Quality of Life	Improved 6.9	Improved 2.4	P= 0.05	**II**
Self-management	58% improved	27% improved		**II**
Patient Satisfaction	**8.0**	**7.5**	**P = 0.03**	**II**

Outreach programs for COPD Clients

Does Long-term monitoring of High–risk clients improve clinical outcomes and decrease health care utilisation?

Level 3-iii evidence					

COPD: Long-term client monitoring defined as continuing outreach home based follow-up for greater than 12 weeks.

Long-term home care programs for COPD clients have included clients with severe COPD, on long-term home oxygen who have had at least 2 admissions to acute care in the previous 12 months.

An intensive long-term program has been found to be effective for clients with severe disease, decreasing readmissions and health care utilisation.

Decreased Emergency attendances & Inpatient admissions in the intervention group.

Long-term outreach follow-up & monitoring by Resp Team

Steinel & Madigan (2003).	Pre	Post	Sign.	Level of Evidence
Inpatient admissions / pt	3.4 Range 0-6	2.3 Range 0-7	P < 0.05	III-3
LOS	22.7 Range 0-66	6.1 Range 0-57		III-3
ED	4.1 Range 0-22	2.6 Range 0-8	P < 0.001	III-3

Cost-effectiveness of Long-term Outreach Nursing

COST US $	Before	After	St. Sign.
Inpatient / PT	$47,535	$33,734	$P = 0.05$
ED	$1439	$900	$P < 0.05$
Home health costs	$4166	$8805	$P < 0.05$
TOTAL	**$ 57, 750**	**$44, 700**	**$P = 0.04$**

SELF-MANAGEMENT TRAINING

Disease Specific Self Management Training.

Symptom Monitoring

Recognition of Deterioration

Action Plans

SELF MANAGEMENT
Disease Specific Self management Training; symptom monitoring, recognition of deteriorations and initial management.

Does disease specific self –management training for COPD clients, decrease SEVERITY OF Exacerbations, and acute Health care utilisation?

Level II Evidence					

RCT 12 patient education sessions over 2 months.

Bourbeau, J. et al. (2003)

Decreased Acute Health care utilization including ED visits, Inpatient admissions, & GP Visits.

Improved Client Quality of Life.

Decreased the % of Exacerbations that required inpatient care

Disease Specific Self management Training; symptom monitoring, recognition of deteriorations and initial management

Bourbeau, J. et al. (2003).[13]	Intervention	Statistical Sign.	Level of Evidence
All Re-admissions	Reduced 57.1 %	P = 0.01	II
COPD Re-admissions	Reduced 39.8 %	P = 0.01	II
ED Attendances	Reduced 41.0 %	P = 0.02	II
Unscheduled Physician visits	Reduced 58.9 %	*P = 0.003*	II

SELF MANAGEMENT
Disease Specific Self management Training; symptom monitoring, recognition of deteriorations and initial management.

Does disease specific self –management training for CHF clients, decrease SEVERITY OF Exacerbations, and acute Health care utilisation?

Level II Evidence					

RCT of self management education for CHF improved self -management of CHF: diet, monitoring weight, and having a personal physician.

There was no difference between groups in self-care abilities.

There were significant differences between intervention and control groups in self care behaviours ($t = 3.8$, $P = 0.001$).

Jaarsma et al (2000)

Exercise Rehabilitation

COPD

&

CHF

Exercise rehabilitation programs for CHF

Exercise training for CHF; can older people benefit?

Level 1 Evidence					

Outcomes: Exercise training in younger carefully selected adults has demonstrated improvements in symptoms, exercise capacity, skeletal muscle myopathy, ergo-receptor function, heart rate variability.

Exercise training is safe and effective and improves quality of life.

Exercise training should be safe and effective for older adults.

Need for further evaluation of exercise rehabilitation programs for frail, elderly clients with CHF and multiple co morbidities.

Exercise rehabilitation programs for CHF Clients.

Does exercise training decrease mortality?

Level 1 Evidence					

Meta-analysis of exercise training for CHF clients.

Piepoli MF at al.(2004).

RCT or Parallel Group studies of exercise training for at least 8 weeks.
9 studies included. Mean Follow-up 705 days.

In favour of exercise.
All cause Mortality: Hazard Ratio 0.65 (95% CI 0.46-0.92) P = 0.015

Time to event, Death or Re-admission:
Hazard Ratio 0.72 (95% CI.0.56-0.93) P = 0.011.

Exercise rehabilitation programs for COPD

Does exercise training for COPD clients improve exercise tolerance, Quality of life and understanding of their condition?

Level 1 Evidence					

Intervention: exercise rehabilitation either inpatient, outpatient or home based programs which consisted of systematic exercise therapy with or without education or psychosocial support.

Outcomes: Exercise capacity, Health related QOL, compliance and knowledge about the disease.

Conclusion Exercise training should be a mandatory component of any rehabilitation program that seeks to improve exercise capacity and health related QOL. Lacasse 1997.

Comprehensive rehabilitation for COPD.

Do comprehensive rehabilitation programs that include education and psychosocial support improve outcomes for COPD clients?

Level 1 Evidence					

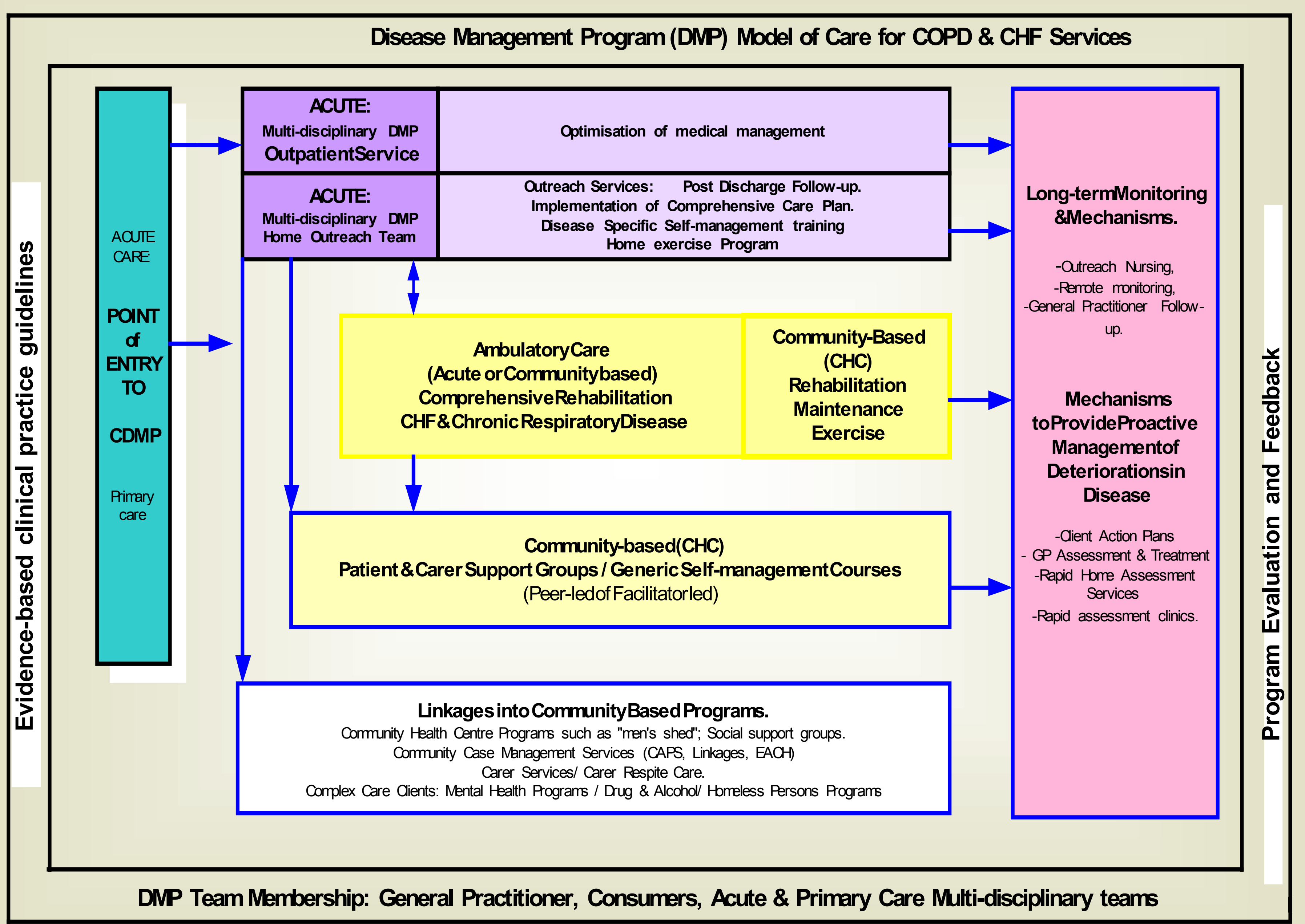
Systematic review **Ries AL (1997)**

Intervention: Lower extremity exercise training, ventilatory muscle training and psychosocial interventions.

Outcomes: Lung function, Exercise endurance, Psychological distress, Dsynoea, Health-related QOL, Health care utilization and Survival

Conclusion: Lower extremity training improved exercise tolerance, strength and endurance training improved arm strength.

Improvements in dysnpoea, exercise tolerance, reduced hospitalisation and length of stay.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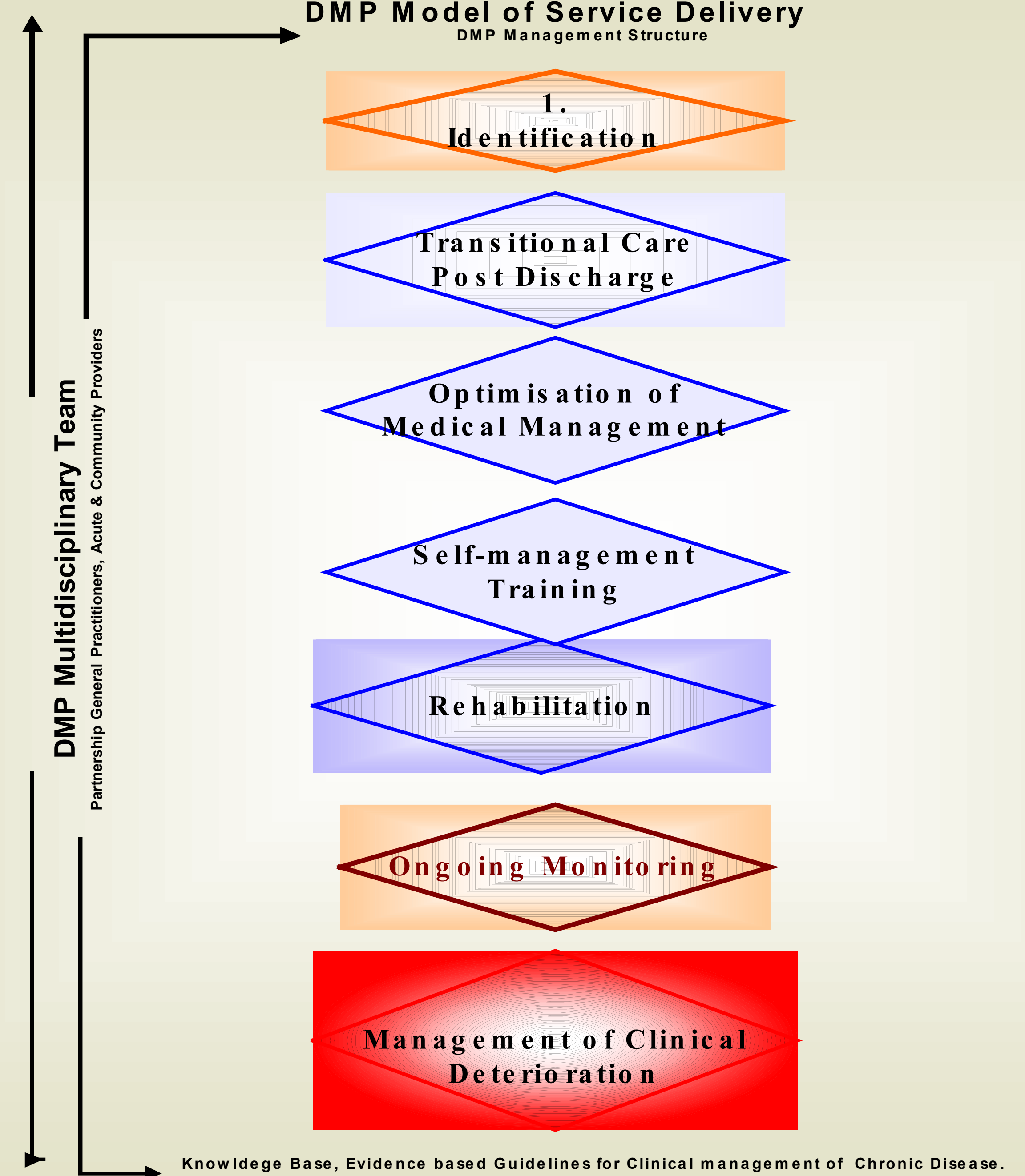
DMP Model of Service Delivery
DMP Management Structure
1. Identification
Transitional Care Post Discharge
Optimisation of Medical Management
Self-management Training
Rehabilitation
Ongoing Monitoring
Management of Clinical Deterioration
DMP Multidisciplinary Team
Partnership General Practitioners, Acute & Community Providers
Knowldege Base, Evidence based Guidelines for Clinical management of Chronic Disease.
Quality Improvement.