CDPM – Vascular Health Model

An Evidence-Based Approach

ECMS Presentation

Dr. Al Kadri

June 3, 2015

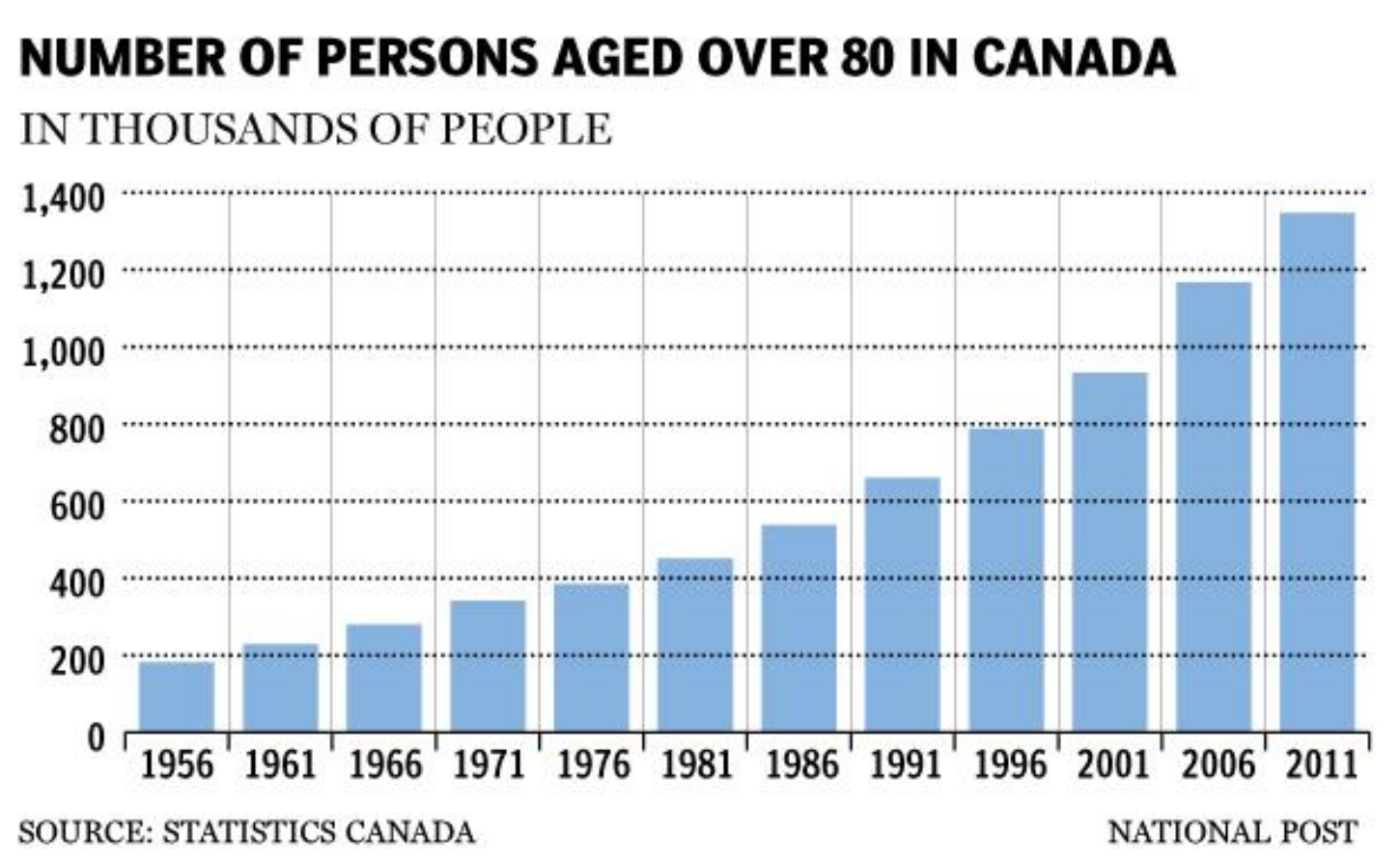
CDPM – Vascular Health Model

Objectives:

1. The Epidemic
2. Goals of Care
2. Traditional Models of Care
3. Comprehensive CDPM - high risk patients

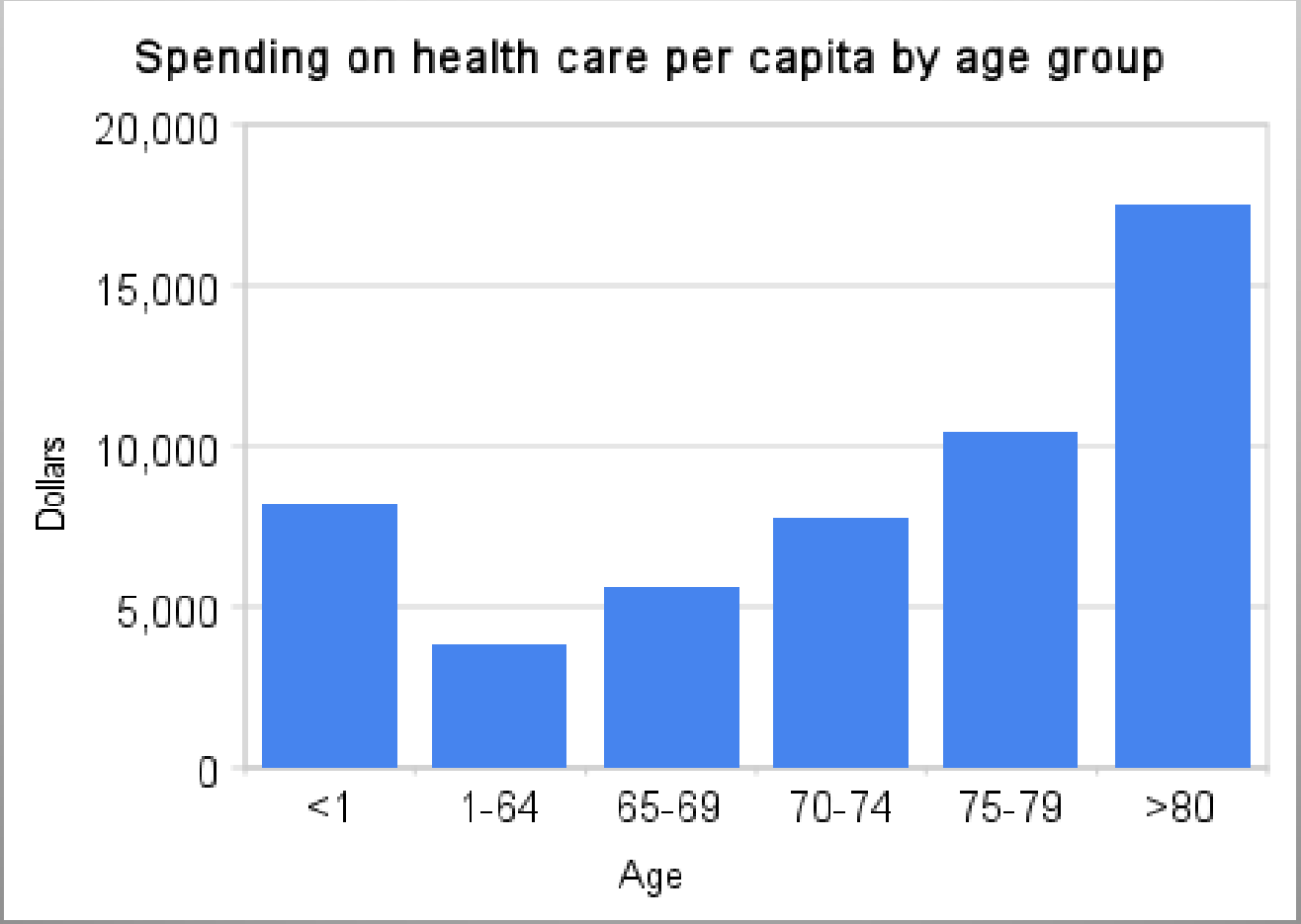
The Epidemic

The Aging Population:



The Epidemic

The Aging Population:



The Epidemic

The Aging Population:

Cardiovascular disease is the leading cause of death in Canada, accounting for at least 36% of all deaths or about 80,000 people each year

More than 450,000 Canadians were hospitalized for cardiovascular disease in 2000

Cardiovascular disease is the most costly disease affecting Canadians. In 1998, it was responsible for $18.8 billion in expenditures, 11.8% of the total cost of all illness in Canada

-Canadian Institutes of Health Research (CIHR)

The Epidemic

Chronic Kidney Disease

Vast majority of CKD cases are due to DM, HTN and vascular disease - 80% of CKD patients will die of cardiovascular disease

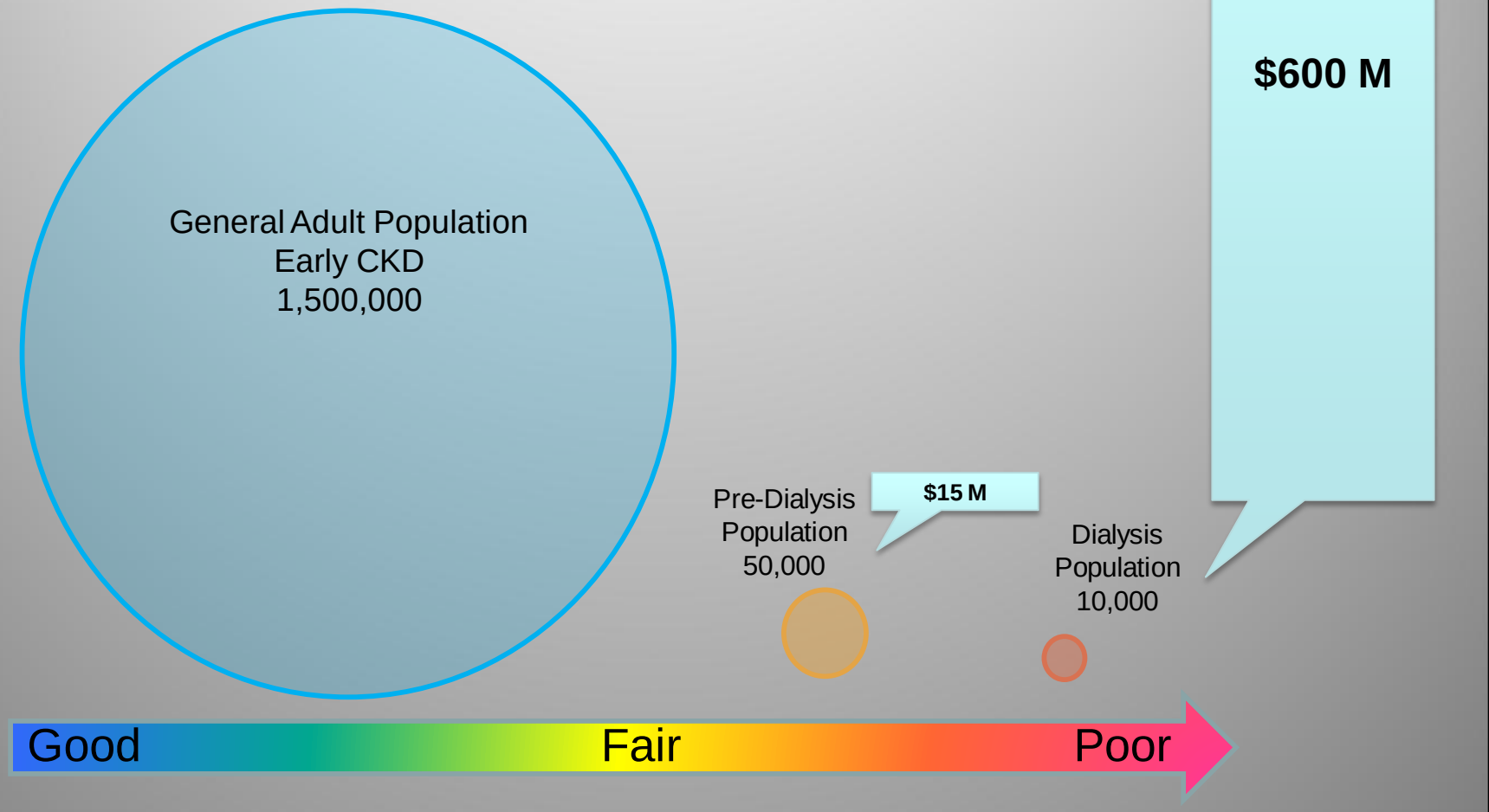
An estimated 2.6 million Canadians have kidney disease, or are at risk

In 2009, there were nearly 38,000 Canadians on renal replacement therapy – more than triple the number in 1990

2.2 billion dollars spent yearly on dialysis in Canada

The Epidemic

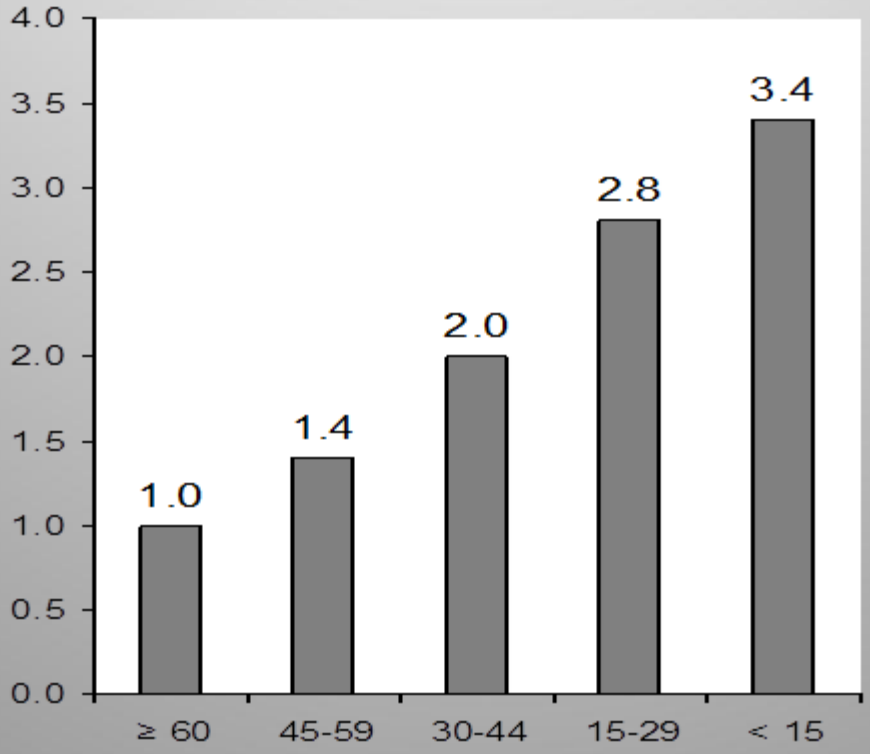
CKD – Demographics and Cost



The Epidemic

CKD – Leads to increased CVD

The NEW ENGLAND JOURNAL of MEDICINE



Adjusted* hazard ratio for CVD events

Go, et al., 2004

The Epidemic

Vascular Disease

Vascular disease affects virtually every organ system across numerous medical specialties (cardiac, renal, cerebral, peripheral)

Risk factors are multiple – HTN, DM, Dyslipidemia, Smoking, Obesity - and common in our society

Early intervention strategies to prevent and manage risk factors and early chronic disease can have a profound impact on patient outcomes (MAU, Glycemic control, BP targets, Statin studies) – the evidence is overwhelming

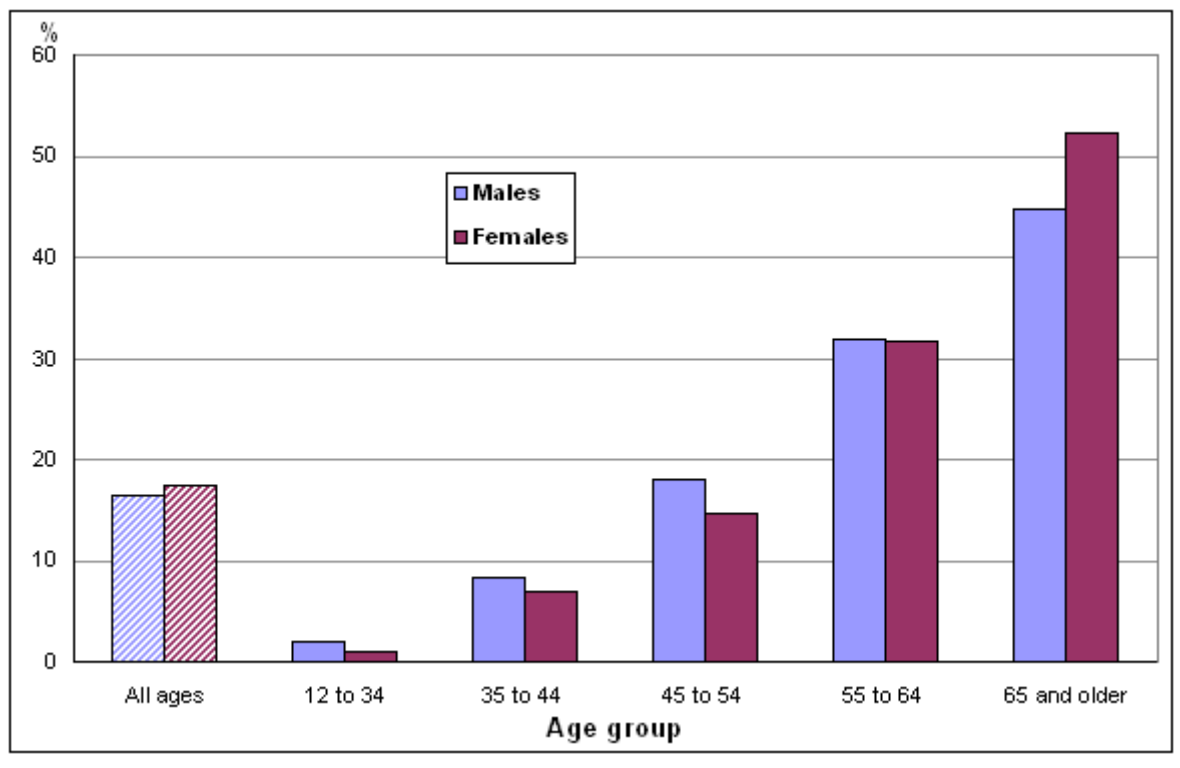
Patients currently must go to multiple different sites for care that tends to be very inter-related

The Epidemic

Hypertension

Percentage diagnosed with high blood pressure in Canada – 2009

Source: Canadian Community Health Survey, 2009.



The Epidemic

Benefits of Treating Hypertension

Younger than 60 (reducing BP 10/5-6 mmHg)

- reduces the risk of stroke by **42%**
- reduces the risk of coronary event by **14%**

Older than 60 (reducing BP 15/6 mmHg)

- reduces overall mortality by **15%**
- reduces cardiovascular mortality by **36%**
- reduces incidence of stroke by **35%**
- reduces coronary artery disease by **18%**

Older than 60 with isolated systolic hypertension – treating to target

- 42% reduction in the risk of stroke
- 26% reduction in the risk of coronary events

- Lancet 1990, 1997, CHEP 2011

The Epidemic

Hypertension

The management of hypertension is all about global risk management and vascular protection

- CHEP 2010

Hypertension is a significant risk factor for:

- cerebrovascular disease
- coronary artery disease
- congestive heart failure
- renal failure
- peripheral vascular disease
- dementia
- atrial fibrillation
- erectile dysfunction

The Epidemic

Diabetes and Metabolic

It is estimated that 40 per cent of Canadians with living with diabetes will develop long term complications

Canadian adults living with diabetes are twice as likely to die prematurely than non-diabetics

For people living with type 2 diabetes, life expectancy may be shortened by five to10 years

Every year, diabetes is a contributing factor in the deaths of some 41,500 Canadians

The Epidemic

Diabetes and Metabolic

Diabetes affects more than 800,000 people, or 8.73 per cent of Ontario's population

Approximately 80 per cent of people living with diabetes will die as a result of heart disease or stroke

The financial burden for people living with diabetes is two to three times higher than it is for those without diabetes with direct costs for medications and supplies between $1,000 and $15,000 a year

The Canadian Diabetes Association estimates that diabetes and its complications cost the Canadian healthcare system approximately $13.2 billion every year

- CDA, MOHLTC, Public Health Agency of Canada

Defining the High Risk Patient

Established end-organ damage

- Advanced CKD
- IHD/CHF
- PVD
- Difficult to control risk factors
- Complications of therapy
- High risk of ER, hospital admission

Goals of Care – Vascular and CKD

Early Identification

Risk Factor Management

Delay Progression of Disease

Prevent Morbidity and Mortality

Limit ER and Hospital Admissions

Goals of Care – Vascular and CKD Patient

Increase access to care

Limit Costs of Care

Shift Care to the Community

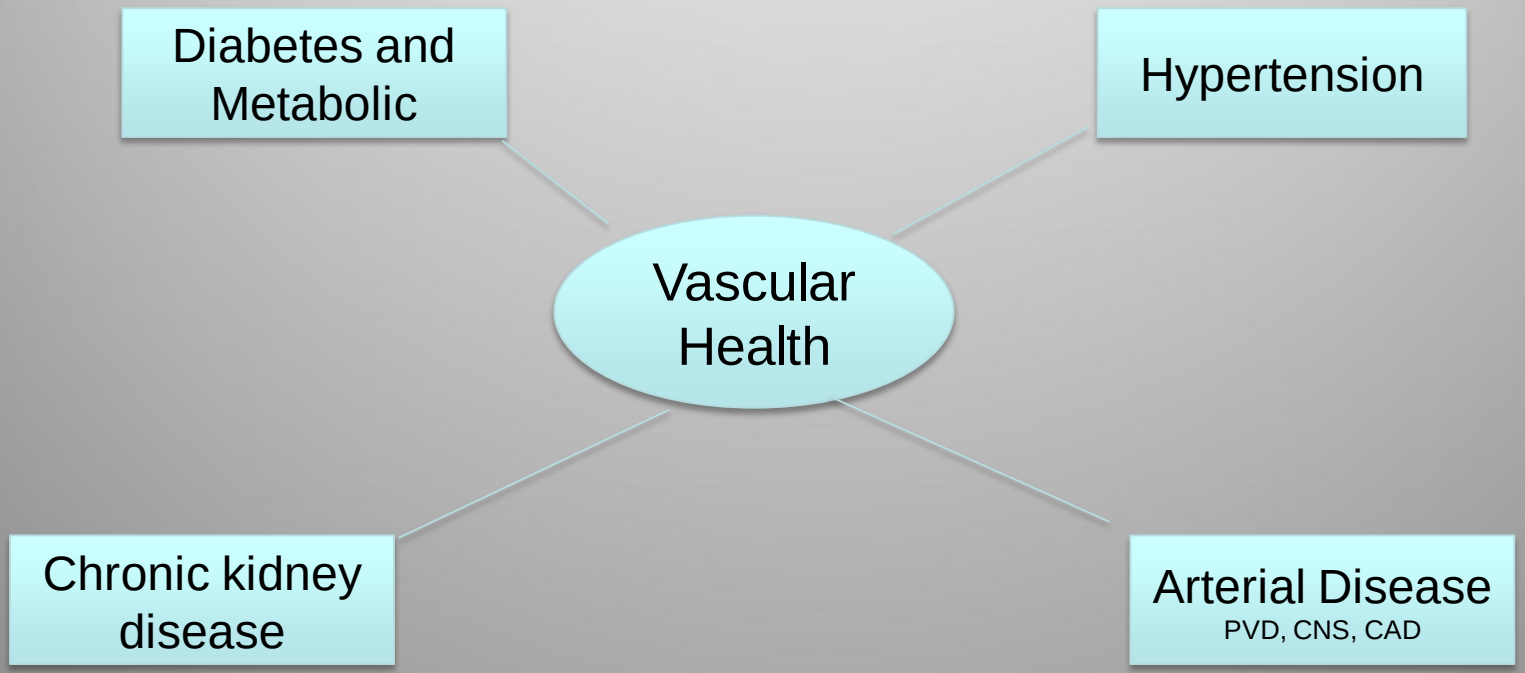
Promote Wellness Model

Co-ordinate care across providers

Shift to Patient-Centred Care

Comprehensive Vascular CDPM

Cornerstones of Care:



Traditional Models of Care

Silo Syndrome

Parking

Access

Compliance to visits

Distance

Outcomes – renal and cardiovascular

Patient Satisfaction vs Preference

CKD and Comprehensive CDPM

The Need:

To increase access to comprehensive CKD and CDPM management in community based settings

The Rationale:

Wellness model – community vs hospital

Enhanced access - attendance and compliance

Reduced cost

Attention to factors leading to CVD, ER visits, hospitalizations

Increase uptake of cost-effective therapies

CKD and Comprehensive CDPM

Only survivors cost the system money!!!

Health Care Costs

63 year old male, retired accountant – Diabetes, Hypertension, PVD, CKD, Dyslipidemia presents to ER with chest pain and SOB – January 2010

	Cost ($)
Myocardial Infarction	10, 000
Coronary Angiogram	10, 000
Coronary Bypass Surgery	10, 000
Dialysis	50, 000
Amputation	50, 000
Stroke	50, 000
Total Acute Care Costs 2010	180,000

Remember… this is ONE patient!

CKD and Comprehensive CDPM

- Traditionally lacking in CKD pre-dialysis clinics
- May be as important as RRT preparation to patient outcomes
- Patient fatigue with multiple appointments
- Co-ordination often suboptimal

CKD and Comprehensive CDPM

Multiple Visits

Discontinued preventative therapy

Inaccessible Files

Increased ER visits

Duplicate Labs and Imaging

Increased Wait Times

Increased acute complications

Poly-pharmacy

CKD and Comprehensive CDPM

Endocrinologist

Family MD

Nephrologist

Urologist

Cardiologist

Internist

Neurologist

Vascular Surgeon

CKD and Comprehensive CDPM

Urgent Care Component

Expanded hours and increased access for sub-acute issues

EMR captures issues and changes in therapy

Co-ordinated care with treating specialists

ER can triage to urgent care centre as appropriate – Reduced strain on ER Dept.

CKD and Comprehensive CDPM

Advantages

Single EMR – enhanced information sharing

Better co-operation of specialists in care mapping

Less medication errors and adverse drug interactions

Improved adherence to preventative care therapies

Improved Access to timely care

Improved compliance

Promote Wellness – not illness

Prevention of Acute and Chronic Disease

Reduced wait times

Parking Availability

One-stop Care - single site for complex specialty care and allied health care professionals and services

Extended Hours of Operation

Community presence

Research and Teaching opportunities – single data based with enhanced collaboration

CKD and Comprehensive CDPM