Erie St. Clair **LHIN**
RLISS d'Érié St. Clair
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Chronic Disease Prevention & Management

Erie St. Clair Local Health Integration Network

Regional Hypertension and Vascular Health Clinic
BUSINESS CASE OUTLINE

April 6, 2014

Ontario
Erie St. Clair Local Health Integration Network
Réseau local d'intégration des services de santé d'Érié St. Clair

Section 1: Business Case Name and Contact Information

Title of Business Case: **Regional Hypertension and Vascular Health Clinic**
Date Submitted: April 6, 2014

Contact Information (Lead Health Service Provider):

- Contact Name: Dr. Albert Kadri, MD, FRCPC
- Organization: Dr. A. Kadri Medicine Professional Corporation
- Address: 1106 Ouellette Avenue Suite 104
- Telephone: 519.946.0103 – office 519.560.7648 - cell
- Email Address: dr.kadri@careforkidneys.org

List of other Health Services Providers (HSPs) Involved:

Local physicians (both primary care and specialists) will comprise the faculty. Partnerships with all relevant community based agencies such as CCAC, primary care providers, Family Health Teams, acute care facilities etc. will be pursued.

Section 2: Background and Rationale

Background:

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)

Ischemic heart disease, the most common form of circulatory disease, has killed WEC residents at a higher rate than Ontario as a whole - over 19 % higher on average between 1984 and 1995

Source: Heart Health Action Windsor Essex

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

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

Diabetes

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

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

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

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

Vascular Disease

Cost to treat chronic leg ulcers in Ontario - **$1,474,429,600** (2005)

Diabetic foot ulcers are leading cause of amputations

Estimated 1,500 Ontarians with diabetes had a limb amputated in 2008.

30% of Canadians with DM will die within one year of amputation

51% of those with a first amputation in 2006 had second limb amputated by 2011

50% may have been prevented by appropriate footwear and more effective footcare

- Public Health Agency of Canada, 2008

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

Neurology

There are over 50,000 strokes in Canada each year. That's one stroke every 10 minutes

Stroke is the third leading cause of death in Canada.

Each year, nearly 14,000 Canadians die from stroke

Stroke costs the Canadian economy $3.6 billion a year in physician services, hospital costs, lost wages, and decreased productivity

- Statistics Canada 2010

Pain management

Diabetes and Vascular Disease lead to both neuropathic and ischemic pain that can be very debilitating

Specialty pain management strategies are needed within communities to address this issue appropriately

Multiple physician involvement, inaccessible records, lack of co-ordination of care, and absence of dedicated pain services can lead to both inappropriate prescribing

Peri-operative Assessment

Peri-operative period is the time of greatest risk for complications in the this patient population leading to increased morbidity, mortality and acute care costs

Multiple clinical issues arise that need a co-ordinated approach to minimize complications:

appropriate pre-operative testing

use of cardio-protective medications

anti-coagulation and DVT prophylaxis management

diabetic and anti-hypertensive medication management

antibiotic prophylaxis and therapy

co-ordination of post-operative care

need for intensive care beds for recovery

Multidisciplinary Stone Clinic

10% of adults will develop kidney stones and can become a recurring problem

Stone prevention is an important part of treatment

There is often a metabolic basis for stone development and appropriate testing can uncover

A multi-specialty (nephrology, endocrinology, urology, radiology) and multi-disciplinary (nursing, dietician, pharmacist) can reduce incidence and complications

Assumptions Moving Forward:

That a lack of a coordinated approach to management of cardiovascular risk factors can lead to suboptimal outcomes for patients and escalating healthcare costs.

That there exists a need to:

TO CO-ORDINATE SPECIALTY DIABETIC CARE FOR PATIENTS IN WINDSOR-ESSEX

TO ESTABLISH A REGIONAL HYPERTENSION SPECIALTY CENTRE FOR PATIENTS IN WINDSOR-ESSEX – Completed 2013 – with Full Accreditation from the American Society Of Hypertension – First centre in Canada to receive accreditation

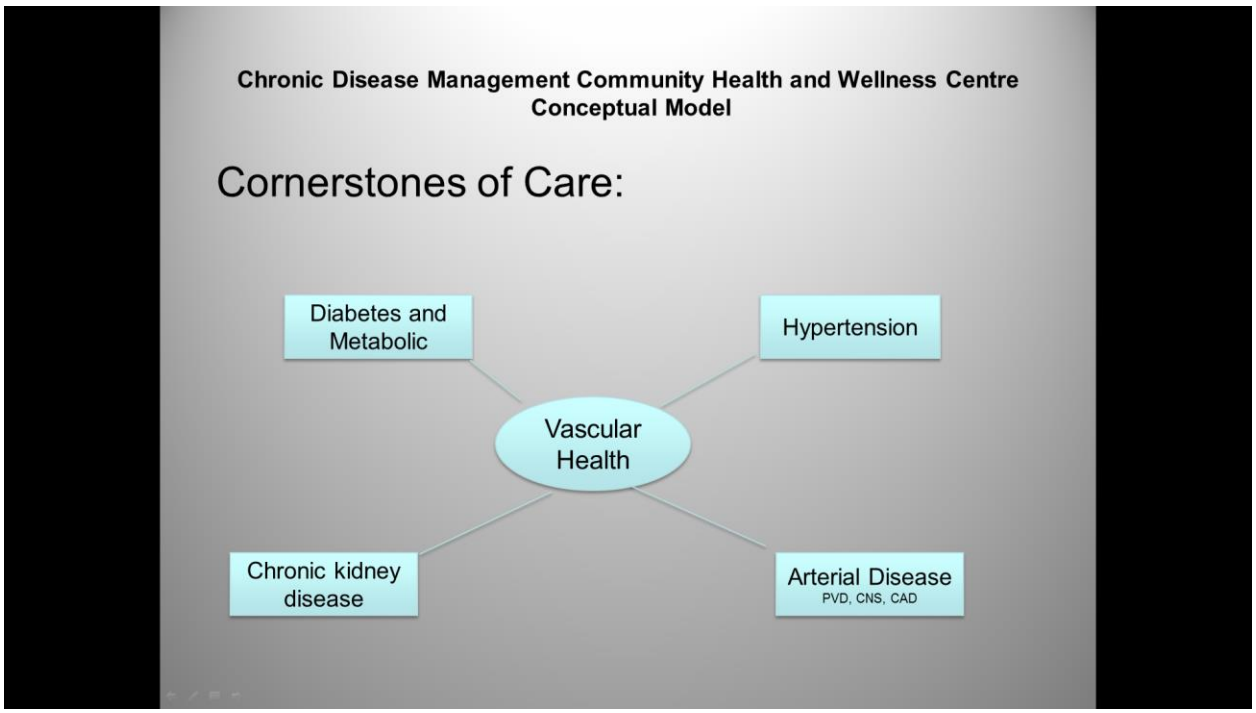
TO CO-ORDINATE SPECIALTY RENAL CARE FOR PATIENTS IN WINDSOR-ESSEX

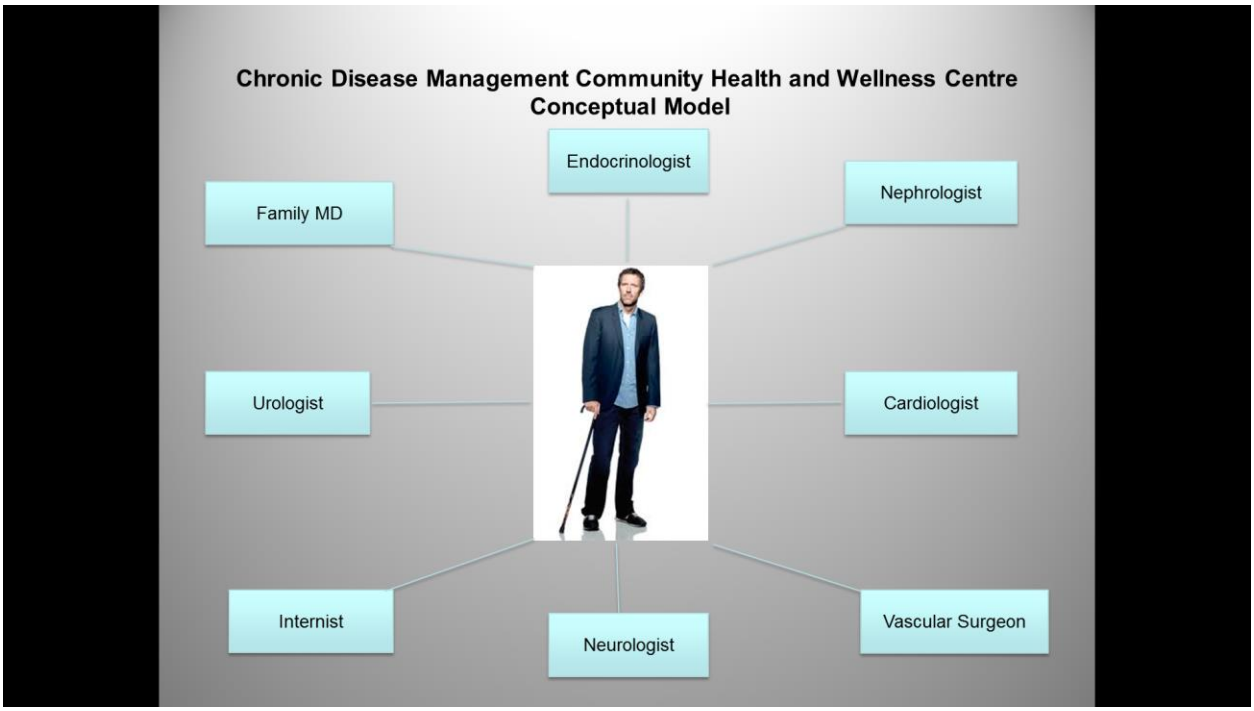
- System Goals (as outlined in the LHIN IHSP3 are):

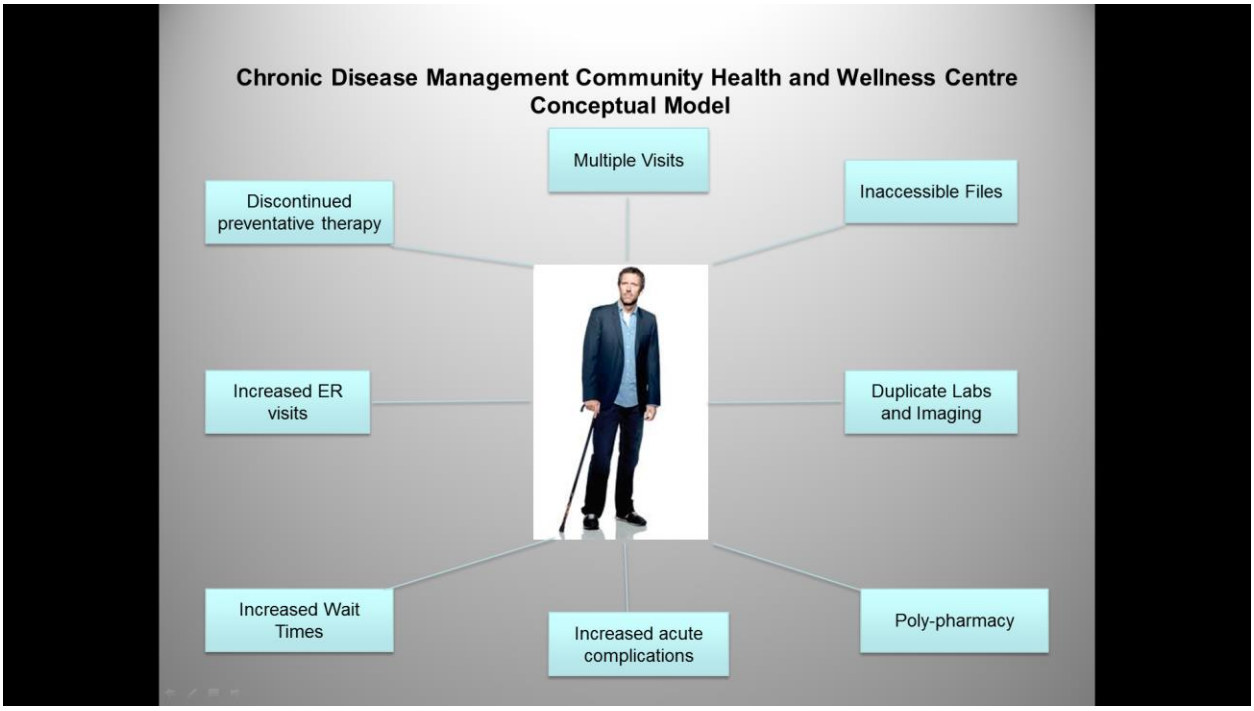
This model is aligned with the LHIN's system goals to achieve all of the 4 priorities listed below:

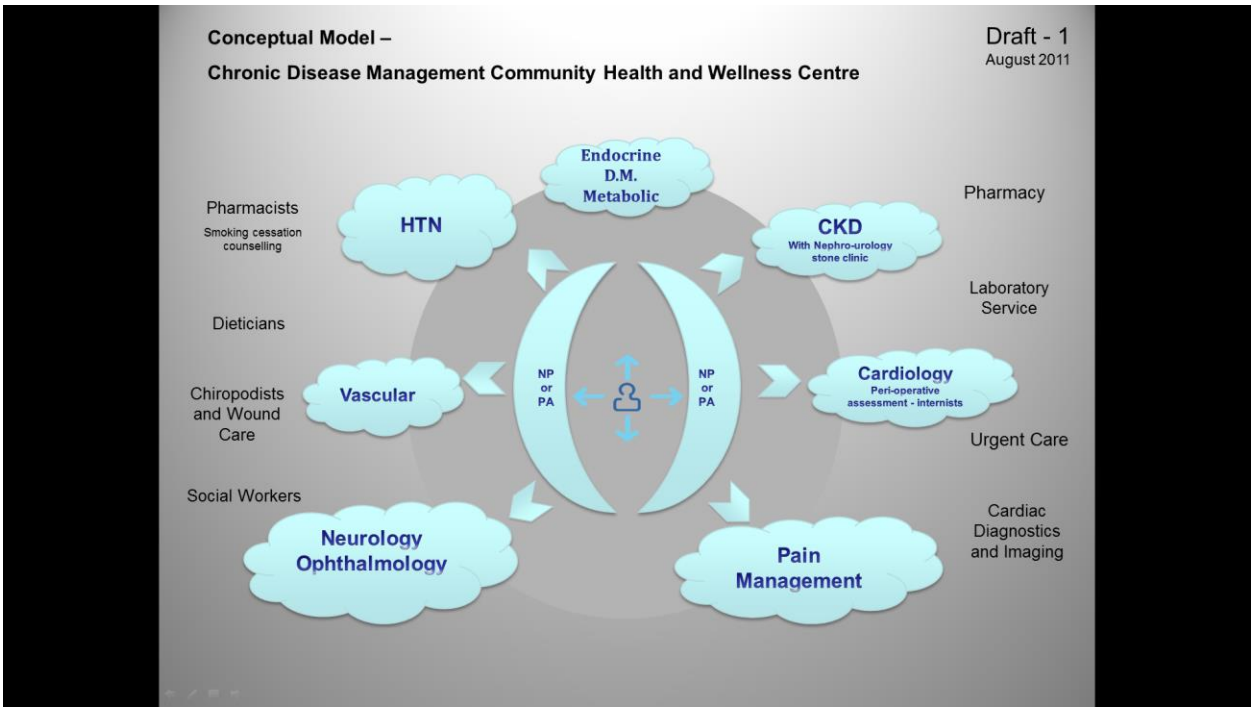
- Improved access to care
- Improved quality enhancements
- Improved cost effectiveness
- Improved coordination/integration

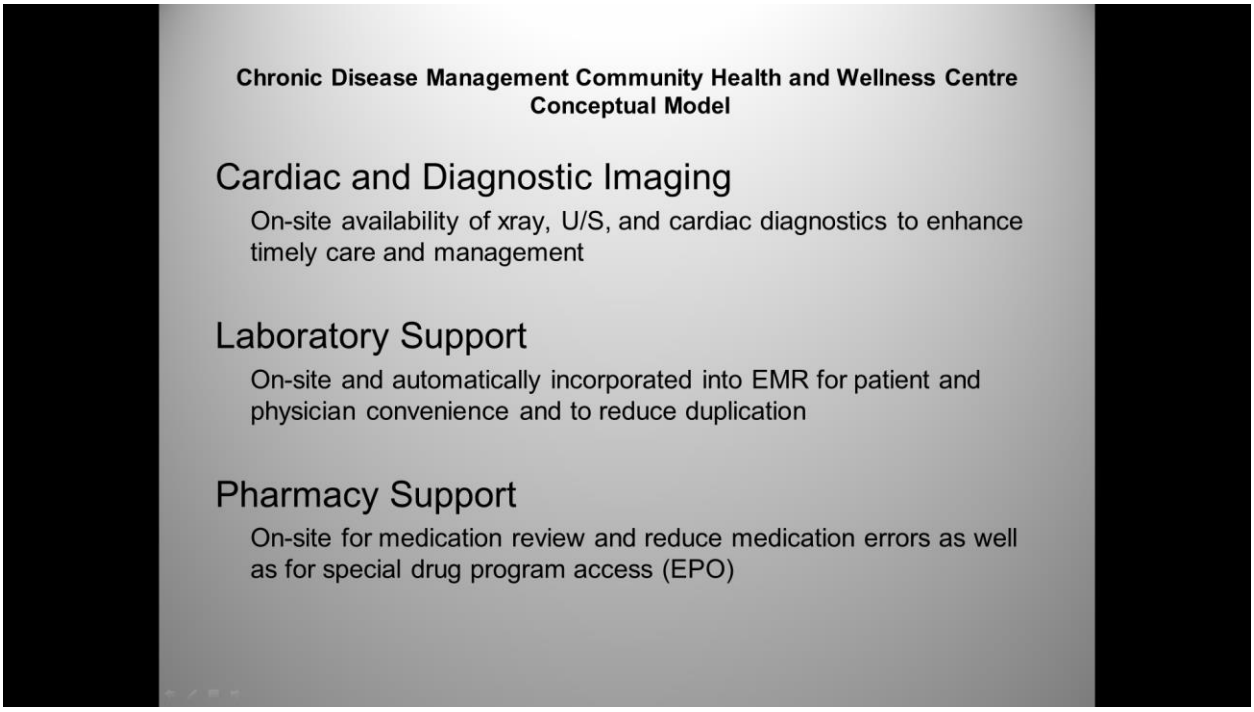
Access to care will be enhanced by having multispecialty and multidiscipline care within a single site reducing wait times to see specialists within the region. In addition, we will reduce the burden on patients for multiple visits of multiple different locations at different points in time. Through improved coordination of care, a single EMR, and timely access to care, improved quality of care and patient satisfaction is an expected outcome. With improved chronic disease management and prevention of acute illness and hospital admission, improved cost effectiveness is also an expected outcome. The primary goal of this model is improved coordination and integration of care to achieve the above mentioned desired outcomes.

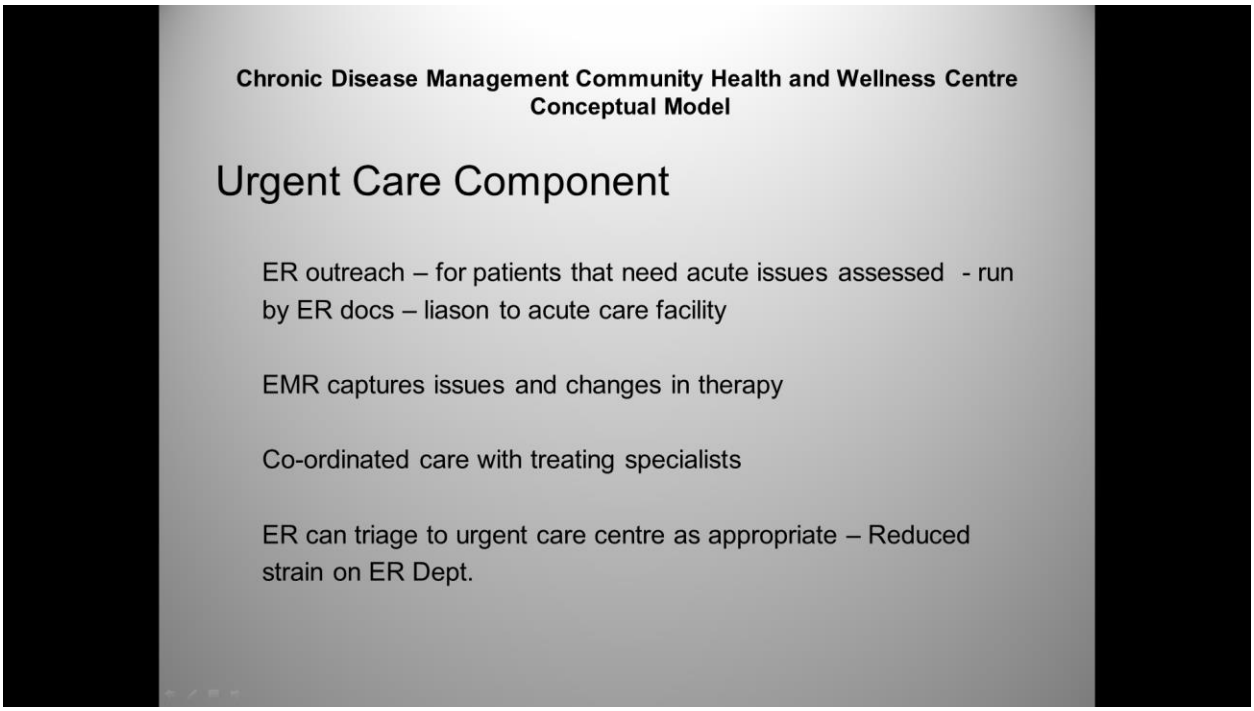


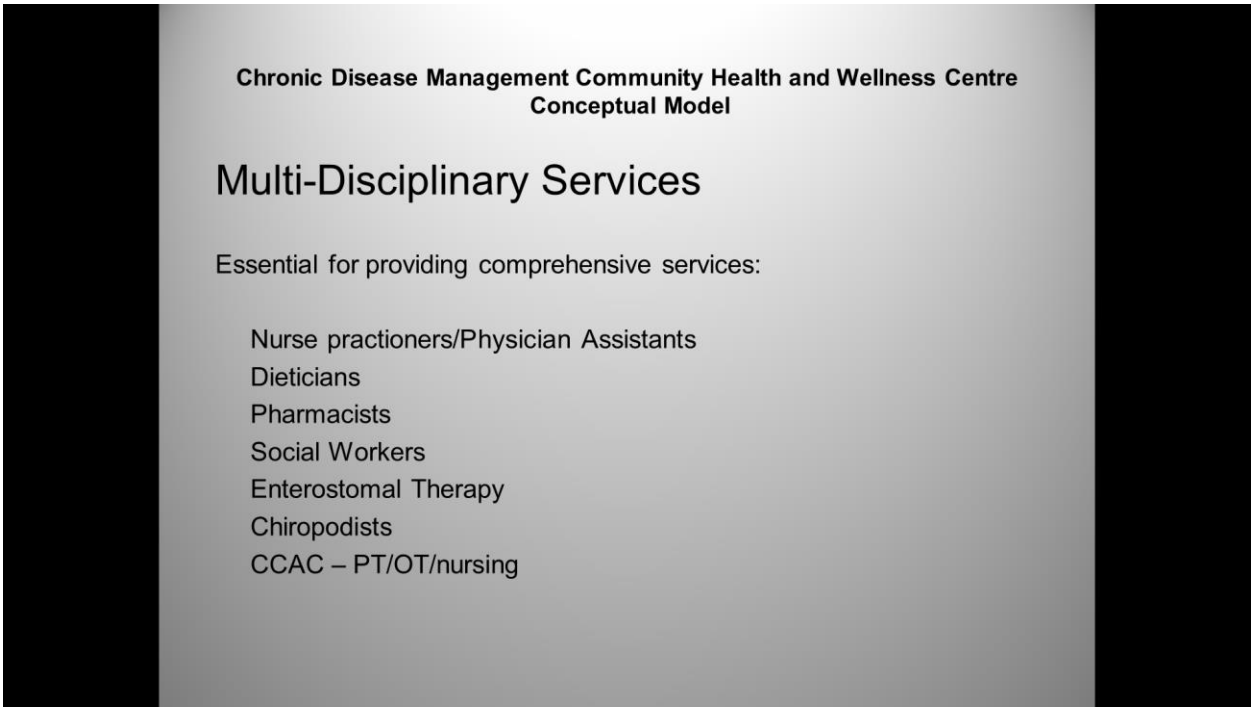

Chronic Disease Management Community Health and Wellness Centre
Conceptual Model
Endocrinologist
Nephrologist
Family MD
Urologist
Cardiologist
Internist
Neurologist
Vascular Surgeon

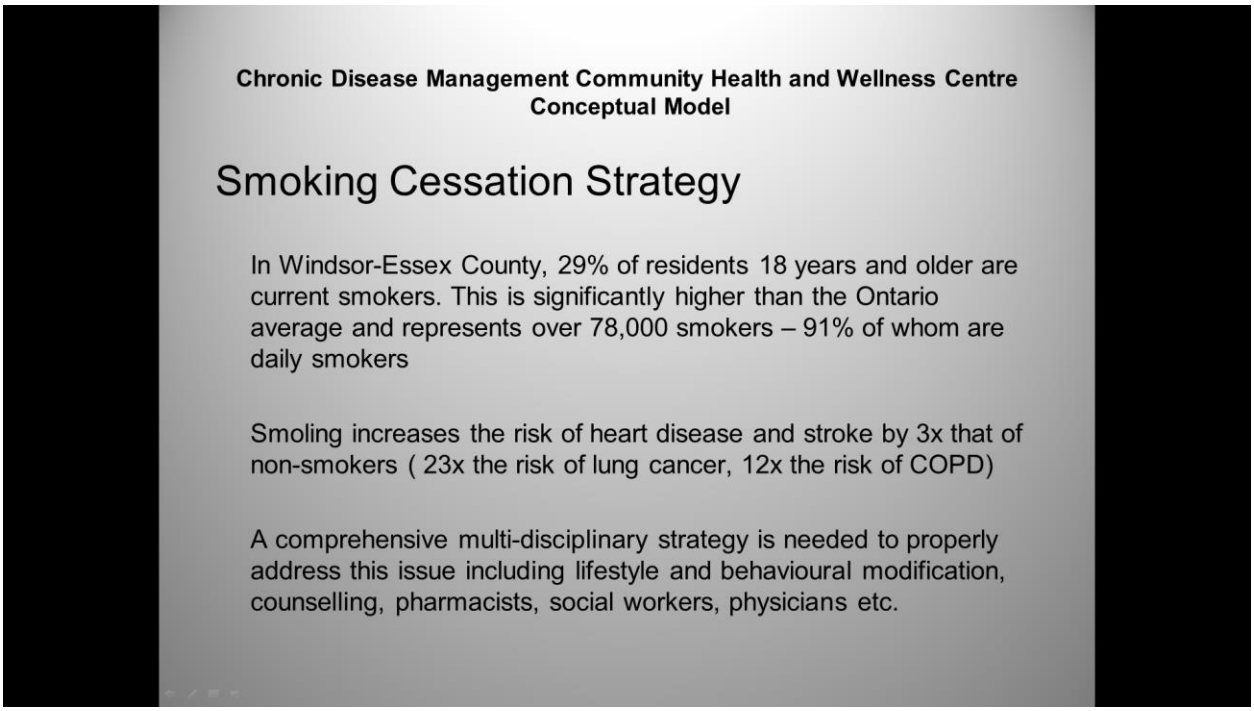

Chronic Disease Management Community Health and Wellness Centre
Conceptual Model
Multiple Visits
Inaccessible Files
Discontinued preventative therapy
Increased ER visits
Duplicate Labs and Imaging
Increased Wait Times
Increased acute complications
Poly-pharmacy

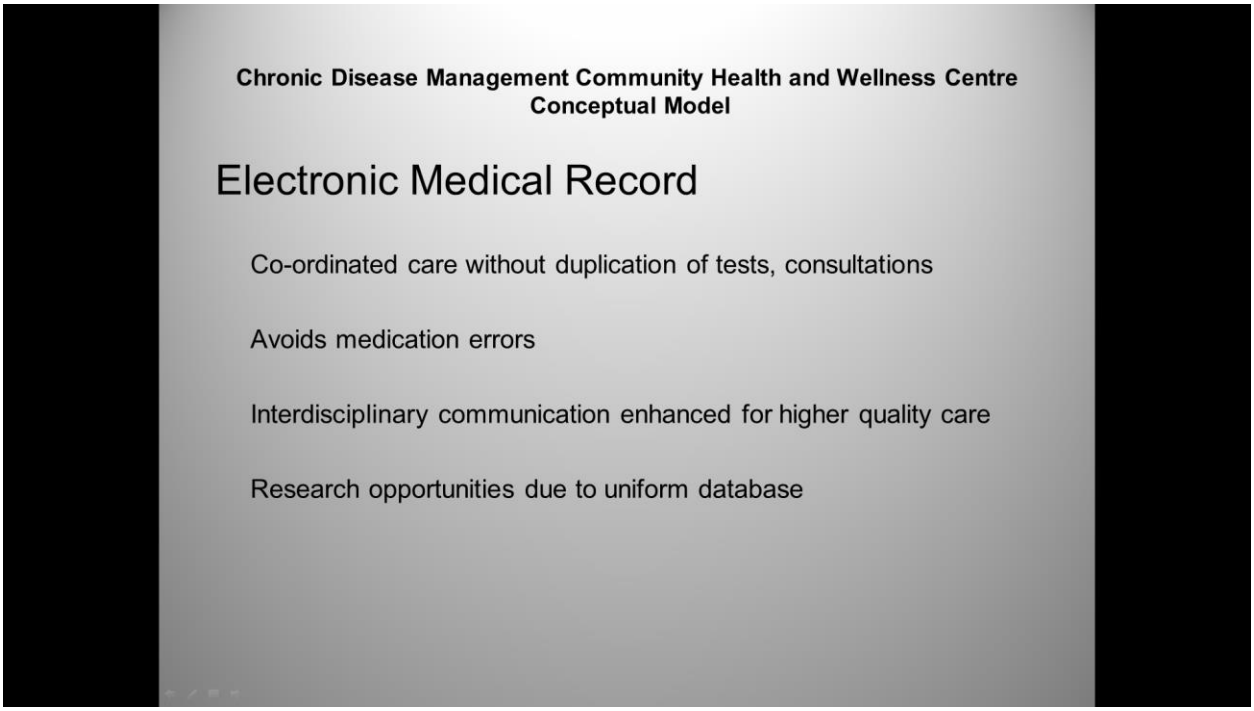

Conceptual Model –
Chronic Disease Management Community Health and Wellness Centre
Draft - 1
August 2011
Endocrine
D.M.
Metabolic
HTN
CKD
With Nephro-urology stone clinic
Pharmacists
Smoking cessation counselling
Pharmacy
Laboratory Service
Dieticians
Chiropodists and Wound Care
Vascular
NP or PA
NP or PA
Cardiology
Peri-operative assessment - internists
Urgent Care
Social Workers
Neurology
Ophthalmology
Pain Management
Cardiac Diagnostics and Imaging

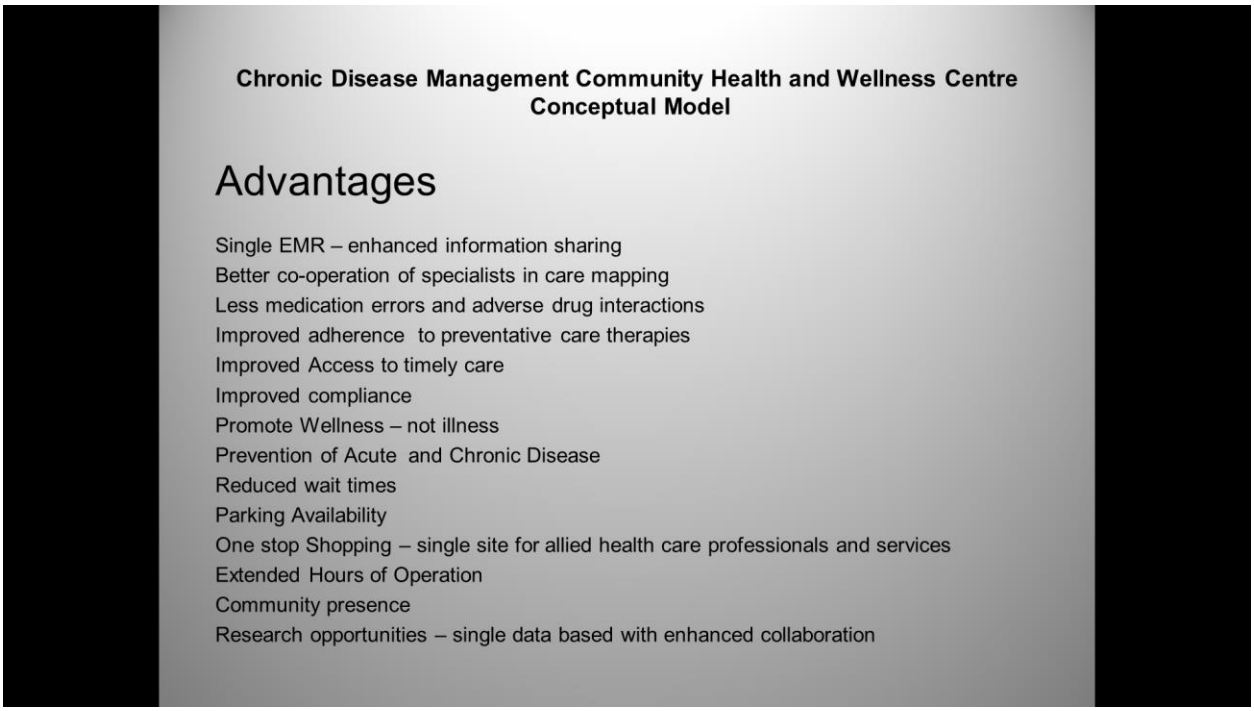

Chronic Disease Management Community Health and Wellness Centre
Conceptual Model
Cardiac and Diagnostic Imaging
On-site availability of xray, U/S, and cardiac diagnostics to enhance timely care and management
Laboratory Support
On-site and automatically incorporated into EMR for patient and physician convenience and to reduce duplication
Pharmacy Support
On-site for medication review and reduce medication errors as well as for special drug program access (EPO)

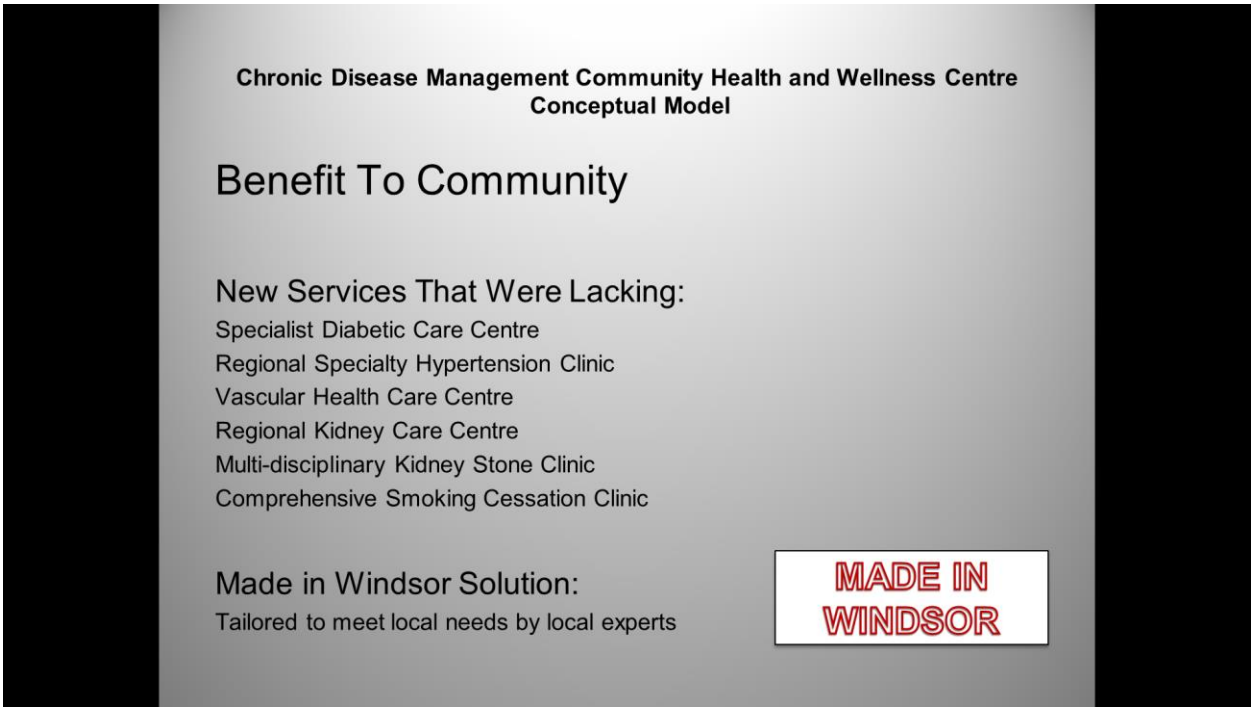

Chronic Disease Management Community Health and Wellness Centre
Conceptual Model
Urgent Care Component
ER outreach – for patients that need acute issues assessed - run by ER docs – liason to acute care facility
EMR captures issues and changes in therapy
Co-ordinated care with treating specialists
ER can triage to urgent care centre as appropriate – Reduced strain on ER Dept.


Chronic Disease Management Community Health and Wellness Centre
Conceptual Model
Multi-Disciplinary Services
Essential for providing comprehensive services:
Nurse practioners/Physician Assistants
Dieticians
Pharmacists
Social Workers
Enterostomal Therapy
Chiropodists
CCAC – PT/OT/nursing


Chronic Disease Management Community Health and Wellness Centre
Conceptual Model
Smoking Cessation Strategy
In Windsor-Essex County, 29% of residents 18 years and older are current smokers. This is significantly higher than the Ontario average and represents over 78,000 smokers – 91% of whom are daily smokers
Smoling increases the risk of heart disease and stroke by 3x that of non-smokers (23x the risk of lung cancer, 12x the risk of COPD)
A comprehensive multi-disciplinary strategy is needed to properly address this issue including lifestyle and behavioural modification, counselling, pharmacists, social workers, physicians etc.


Chronic Disease Management Community Health and Wellness Centre
Conceptual Model
Electronic Medical Record
Co-ordinated care without duplication of tests, consultations
Avoids medication errors
Interdisciplinary communication enhanced for higher quality care
Research opportunities due to uniform database





Section 3: Project Description

Project Description:
In the Table below describe what is in place now (current state) what are we moving to (future state)

Existing Health Care Components:	New Health Care Components:

What programs/components exist now – provide: Components of this model existing currently in a scattered and not optimally coordinated fashion within our community.	List new component(s): **<u>Vascular Health Care Centre</u>** <u>Inclusive of the following:</u> **Regional Specialty Hypertension Clinic – already established** Specialist Diabetic Care Centre Vascular Care Centre Regional Kidney Care Centre and Multi-disciplinary Kidney Stone Clinic Comprehensive Smoking Cessation Clinic Desired outcomes: **Improved access to multi-specialty care** **Improved co-ordination of care** **Improved Patient satisfaction** **Improved patient outcomes and reduced ER visits and hospital admissions**

For each new component being proposed (in the above Table), complete the following:

<u>Component #1:</u>

- Purpose

  To co-ordinate vascular care within the Windsor Essex region with a focus on hypertension, diabetic, chronic kidney and cardiovascular disease prevention.

- Describe the plan or model

  The model of care proposed as a multispecialty, multidiscipline single site approach to chronic disease prevention and management that is community-based and focused on a model of promoting wellness and improving patient outcomes through evidence-based measures. Coordinated management of hypertension, diabetes, lipids, lifestyle counselling, and early intervention and management of cardiovascular and renal at risk populations with on-site laboratory, pharmacy, EMR and healthcare professionals.

- Who will be served (types of clients/population)by how many clients

Patients at risk of cardiovascular or renal disease chronic within the Windsor and Essex region will be served by this clinic. These include patients with hypertension, diabetes, established vascular or chronic kidney disease.

- Location
  2480 Ouellette Avenue, Windsor Ontario

- Identify what 'best practices' are being followed

  Best practices guidelines will be followed for:

  1. Hypertension management – CHEP guidelines
  2. Diabetic management – CDA guidelines
  3. Lipid management – CCS guidelines
  4. Cardiac risk management – CCS guidelines
  5. Stroke prevention – CCS guidelines
  6. Prevention of CKD Progression – CSN guidelines

- Indicate Staffing Requirements in the Table below (for each new program component)

Organization	FTEs by Type	Salary & Benefits	Other Comments
Dr. A. Kadri, Medicine Professional Corporation	1.0 FTE Clerk 2.0 FTE Nurse Practioners 1.0 FTE Pharmacist 1.0 FTE Social Worker 1.0 FTE Dietician		

Section 4: Project Goals

- Key Project Goals:

  Co-ordinate and optimize the access and management of chronic disease conditions that ultimately lead to significant cardiovascular and renal morbidity and mortality.

To have a multispecialty and multidisciplinary approach to managing interrelated conditions and risk factors within a single center to optimize adherence to therapies known to improve outcomes.
To improve patient satisfaction with more coordinated care in patients that often have difficulty in attending multiple medical related visits at multiple different sites

To create a vascular health center of excellence focusing on appropriate evidence-based preventative strategies to improve patient outcomes

To reduce visits to the emergency room due to difficult access to coordinated services within the community for management of hypertension, diabetes, cardiovascular and renal disease

Reduced re-admission rates post discharge for patients with DM, HTN, cardiovascular illness and renal disease as community-based multispecialty care available in a timely fashion

To reduce the burden of acute end-organ complications such as heart disease, stroke, renal failure and peripheral arterial disease for patients in Windsor and Essex County

- Indicate expected impact on LHIN strategic goals (identified in section 2):

This model will improve access to multispecialty and multidisciplinary care within the community for patients with common chronic conditions known to lead to significant cardiovascular and renal morbidity and mortality. Currently this care is not coordinated in an optimal fashion. A single facility providing this service will be a one stop centre with a single EMR, pharmacy and laboratory support which will enhance the ability to optimize care and promote adherence to therapy strategies. A single EMR and database along with coordinated care will allow for greater quality assurance measures in promoting adherence to guidelines known to have a positive effect on patient outcomes. This strategy has great potential for improving cost effectiveness by reducing duplication of tests and investigations, greater information sharing across specialties and disciplines and by reducing ER visits and acute illness requiring hospitalization. The enhanced coordination of care and single site access to multispecialty service will lead to improved patient satisfaction and attendance to visits necessary for promoting health and wellness in this patient population. This in turn will hopefully create an atmosphere fostering greater compliance to strategies known to positively affect patient outcomes and reduce reliance on emergency room departments and inpatient acute care services.

Section 5: Project Deliverables

- Describe the Project Deliverables:

1. Establish a single site CDPM centre for HTN, DM, cardiovascular and renal care
2. Establish a multispecialty and multi-disciplinary faculty
3. Establish a single EMR with on-site pharmacy, laboratory and diagnostics

Section 6: Project Outcomes

List the Project Outcomes for each of the Headings Below:

- **Clinical**
  Increased adherence to established guidelines
  Increased patient compliance to therapies
  Greater optimization of BP, DM, Lipid, Cardiovascular, CKD management
  Less medication errors

- **Functional**
  One stop site with free parking and recognizable location
  Greater co-ordination and access to care from specialties and allied services

- **Cost**
  Reduced ER visits due to urgent care component and timely access to specialists
  Reduce acute care hospitalizations within this population

- **Patient Satisfaction/Experience**
  Increased patient satisfaction through enhanced access to timely care, multiple services at one site, reduced frequency of medical visits, less reliance on being sent to ER for issues, reduced wait times for services, extended hours of operations, free parking etc

Section 7: Performance

Describe Key Performance Measures for each Component and indicate how they are consistent with and/or will support the LHIN IHSP3 key performance measures (below):

- **Reduced ED Visits**
  Providing more co-ordinated care for DM and HTN and those at risk of cardiovascular and renal disease with an urgent care and in-centre physical triage component with expanded hours of operation and more timely access to specialty care, will help reduce E.D. visits.
- **Reduced ED Length of Stay**
  Patients who present to ER can also be reverse triaged to the specialty clinic to deal with issues requiring specialty or multi-disciplinary care, reducing the ED length of stay
- **Reduction in Repeat Unplanned ED visits within 30 days**
  Having timely access to followup of plans implemented within the ED within community based clinic will reduce repeat ED visits
- **Reduced Readmissions to Hospital(s) within 30 days**
  More optimal post discharge followup with multi-specialty care will reduce hospital re-admission rates due to patients "falling through the cracks"
- **Reduction in percentage ALC days**
  Longer term projection of reduction in ALC days anticipated with reduction of stroke and advanced cardiac and renal disease may reduce hospital admissions in patient's that subsequently require placement

Goals:	**Actions:** **(Questions we want to answer)**	**Indicators:**
Component 1: **Reduced ED Visits**	Will more timely access to co-ordinated community-based multispecialty DM, HTN and cardiovascular care reduce ED visits?	ED visits within acute care facility for patients with DM, HTN or cardiovascular diagnoses
Component 2: **Reduced re-admission rates post hospital discharge**	Will more timely access to co-ordinated community-based multispecialty DM, HTN and cardiovascular care reduce hospital re-admission rates?	Hospital re-admission rates for patients with DM, HTN, or cardiovascular diagnoses
Component 3: **Reduced progression of CKD and cardiovascular disease to ESRD requiring dialysis, stroke and decompensated heart failure**	Will more timely access to co-ordinated community-based multispecialty DM, HTN and cardiovascular care reduce incidence of stroke, ESRD requiring dialysis, or admissions for CHF?	Regional Stroke rates Regional Rates of ESRD requiring dialysis Hospital admissions with CHF as primary diagnosis

Measures:	**Baseline:**	**Benchmark: (Cite Source)**	**Target:**	**Predicted Change:**		
				Yr 1	**Yr 2**	**Yr 3**
Component 1: **Reduced ED Visits**	Need data		Reduce by 20%	5%	10%	20%
Component 2: **Reduced re-admission rates post hospital discharge**	Need data		Reduce by 20%	5%	10%	20%
Component 3: **Reduced progression of CKD and cardiovascular disease to ESRD requiring dialysis, stroke and decompensated heart failure**	Need data		Reduce by 10%	2.5%	5%	10%

Section 8: Risks and Mitigation Strategy:

Indicate the Main Risks and Mitigation Strategy for each:

Risk:	Mitigation Strategy:
Increased risk of chronic disease, morbidity and mortality; higher potential years-of-life-lost rate, as well as increased acute complications and higher acute care costs	CDPM model must be robust for co-ordination of care across multiple disease conditions with similar risk factors. Team must be appropriately qualified and resourced to positively affect outcomes.
Underfunding resulting in wait times will negate benefits of timely access (increased ED visits, hospital admissions)	Must be adequately resourced to provide timely access to care with extended hours of operation and urgent care and triage components to clinic
Inability to positively change patient outcomes.	Appropriately qualified staff to adhere to guidelines to optimize strategies to improve outcomes Regular quality assurance and quality improvement initiatives Attention to maintaining timely access to care
Inability to engage all stakeholders	Care must be inclusive of stakeholders and promote co-ordinated team approach to care with strong partnerships with established community agencies and acute care facilities

Section 9: Project Budget: (One time/base/capital)

For each New Program Component Indicate the Following:

Component 1#: Name	Funding Year: 2014-2015
Base – 6 FTE positions listed above	One-Time – renovation costs
Capital: equipment costs, supplies	

Component 2#: Name	Funding Year:
Base	One-Time:
Capital:	

Specific Recommendations:

1. **Approve a regional CDPM model for Hypertension and Vascular Care**
2. **Existing site – highly visible, accessible**
3. **Accreditation in place as Specialty Hypertension Centre with accredited certified medical director**
4. **Essex county medical specialists and community supportive**