

Estimating Need for Advance Care Planning for Persons at End of Life with Cardiovascular Disease

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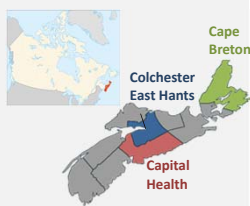
Advance care planning (ACP) is being advocated for persons with advanced disease that could lead to the person's death within the next year. Persons with life-limiting cardiovascular disease (CVD) could benefit from ACP. Estimating the need for ACP can benefit from a better understanding of persons at end of life with CVD.

Purpose

To determine the demographics, co-morbidities, and type of care of persons at end of life with CVD in three District Health Authorities (DHA) in Nova Scotia (NS), Canada.

Setting

Study DHAs are: Capital Health (CH), Cape Breton (CB) and Colchester East Hants (CEH). CEH is the most rural and CH most urban. Together, they have 65% of population of NS of 940,000. Each has a Palliative Care Program (PCP).



Study Subjects

97,713 deaths in NS from 1998-2009. PCP enrollment findings (Table 3, Figure 5) are for deaths in the three study DHAs with data from 1996-2009 for CH and CB, and 2002-2009 for CEH.

Method

Data from the PCPs and registries of three provincial disease programs (Cardiovascular Health NS (CVHNS), Cancer Care NS, Diabetes Care Program of NS) were linked to the deaths. All causes of death recorded on death certificates were used; up to 13 causes are listed. International Classification of Diseases version 10 CVD causes of death are: I20-I25, I48, I50. CVHNS registry diseases are: heart failure (HF: I50), unstable angina (UI: I20), acute myocardial infarction (AMI: I21-I22). Indication of CVD includes: in CVHNS registry, CVD cause of death, and a PCP CVD diagnosis. Persons who died and were in the CVHNS registry could have died from a disease other than CVD. PCP diagnoses data were limited and so only reported in Table 3.

Limitations

HF and other forms of CVD were not analyzed separately. Chronic ischemic heart disease, atrial fibrillation, and other ischemic heart disease are included in CVD definition but not in CVHNS registry. Since CVHNS registry data is based on hospital inpatient data and began in 1997, completeness of reporting of prevalent cases increased over time but is missing persons not hospitalized with a HF, UI or AMI diagnosis.

Data Providers



Results

The percentage of all deaths that had a CVD cause of death decreased over time from 33% in 1998 to 29% in 2009. Persons who died of CVD were more likely to be male, and were older (78.6) than all deaths (74.6).

Figure 1: Sex

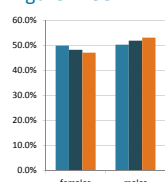
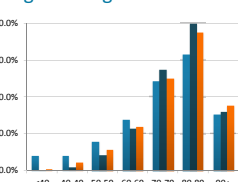


Figure 2: Age



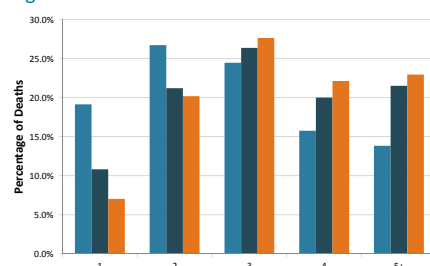
Persons with CVD as a cause of death were compared to being in the CVHNS registry. Sensitivity was 65.1%, and specificity 79.7%.

Table 1: Classifying CVD

	In CVHNS Registry	
	Yes	No
CVD cause of death	16,098	14,786
	8,630	58,199

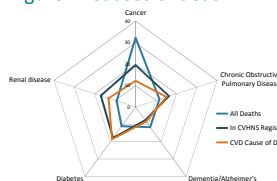
Persons with CVD as a cause of death had an average of 3.5 causes of death on their death certificate, compared to 2.9 for all decedents.

Figure 3: Number of Causes of Death



Among all deaths, 31.6% had a CVD cause of death. Among those in CVHNS registry, their additional causes were cancer (19.5%), diabetes (17.8%), renal (17.0%), chronic obstructive pulmonary disease (16.4%), dementia/Alzheimer's (7.6%).

Figure 4: Causes of death



Compared to all deaths, deaths in the CVHNS registry and with a CVD cause of death were more likely to have diabetes, renal disease and chronic obstructive pulmonary disease.

Among persons who died and were in the CVHNS registry, 35.9% were present in the cancer registry, and 17.6% in the diabetes registry.

Table 2: CVD decedents in Cancer/Diabetes Registries

Indication of CVD	In Cancer Registry	In Diabetes Registry	In both Diabetes & Cancer Registries
In CVHNS Registry	35.9%	17.6%	6.2%
CVD cause of death	27.7%	13.6%	3.9%

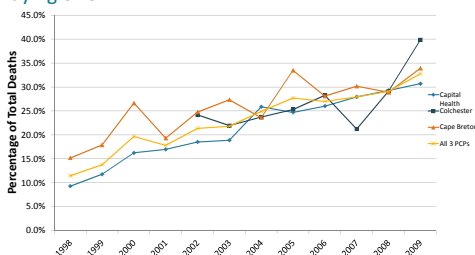
Among those with any indication of CVD, PCP enrolment was highest in the most rural (CEH) (27.5%), and lowest in most urban (CH) PCP (20.3%).

Table 3: Persons dying of CVD enrolled in PCPs by type of CVD identification

Indication of CVD	CH	CEH	CB
CVD cause of death	10.6%	16.8%	14.4%
In CVHNS registry	14.6%	21.6%	19.3%
CVD PCP Diagnosis	7.4%	2.4%	3.5%
Any Indication of CVD	20.3%	27.5%	24.4%

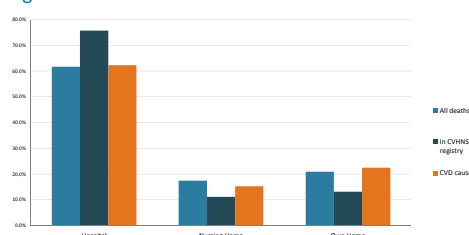
PCP enrolment for persons with any indication of CVD increased over time in all three PCPs, at an overall rate of 1.7% annually from 11.5% in 1998 to 32.7% in 2009.

Figure 5: PCP Enrollment over time among persons dying of CVD



Among persons who died and were in the CVHNS registry, 75.7% died in the hospital, 11.1% in a nursing home, and 13.1% in their own home.

Figure 6: Place of Death



Conclusions

PCP enrolment for persons with CVD is increasing. The need for advance for planning (ACP) for CVD, especially HF, has been established. Persons dying of CVD have other chronic diseases that should be considered in ACP. To decrease in-hospital deaths, collaboration with PCPs, chronic disease programs, and primary care is advised.

Acknowledgement

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