Using Vital Statistics Death Data for Hospice Palliative Care Planning: An example from Nova Scotia, Canada
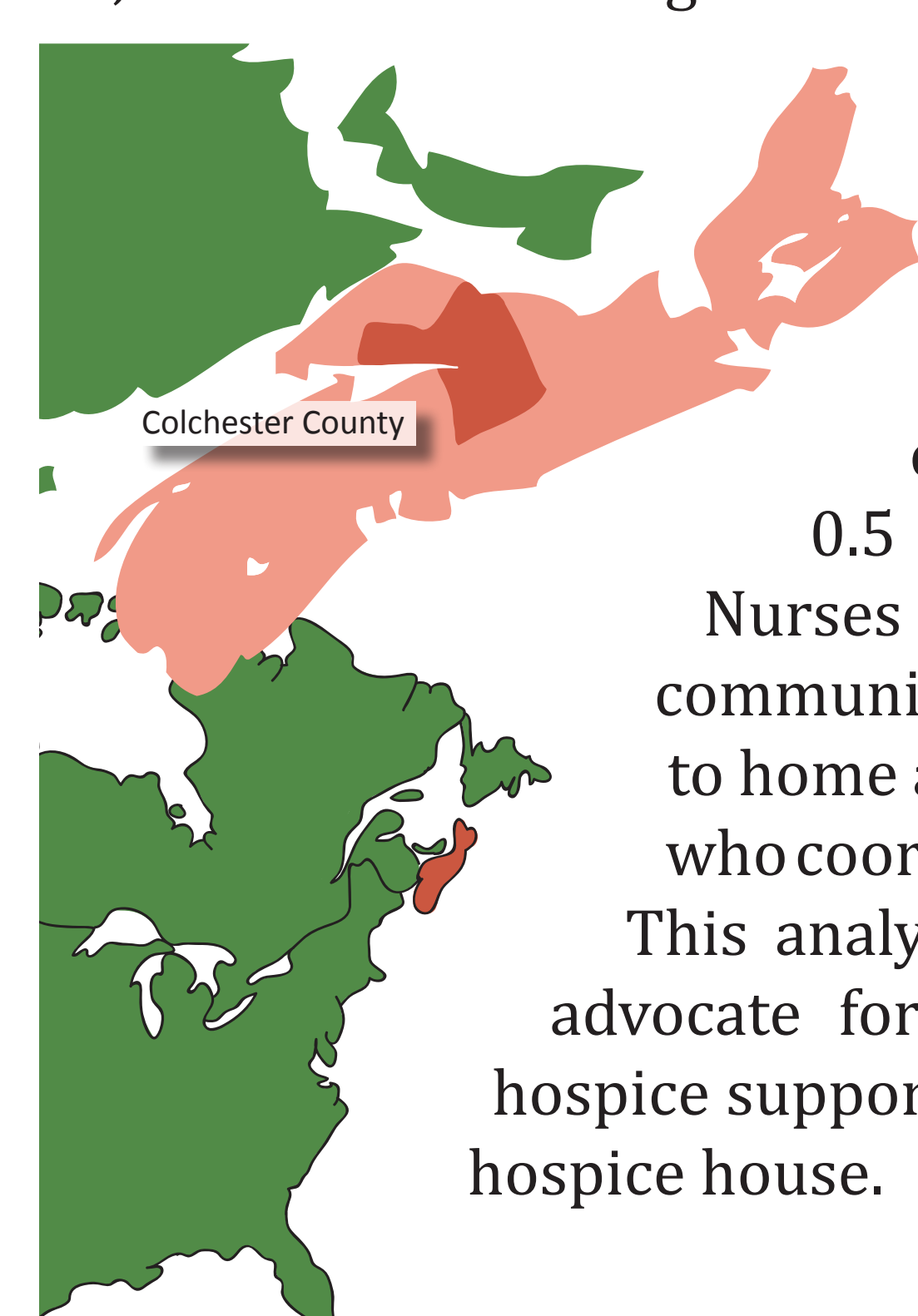
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Death certificate data was used to identify the population that might benefit from hospice palliative care.

Setting

Colchester County is in Nova Scotia, Canada, and has a population of 50,000. Truro is the largest urban area with a population of over 12,000. A palliative service was established in 1990 for the district. It includes 2.0 physicians, 3.9 consult nurses, a 0.5 social worker (in hospital only), 2.0 part time continuing care coordinators, a 0.5 manager and 0.5 clerical support. Victorian Order of Nurses (VON) provides home nursing. The community Hospice society provides volunteers to home and hospital and has one social worker who coordinates grief and bereavement services. This analysis was carried out to help plan and advocate for an expansion in community based hospice support specifically the need for a residential hospice house.

Colchester County

Study Population

All deaths in Colchester county from 1998 to 2005 (n=3659) as obtained from Nova Scotia Vital Statistics, approximately 460 deaths per year.

Methods

A population-based descriptive study provided:
- profile of decedents by age, sex, and chronic disease causes of death;
- minimum and maximum estimates of persons who could benefit from hospice palliative care each year;
- percent dying in hospital as a proxy of adequate access to quality community based end of life care;
- extent of multiple causes of death to help understand care needs near the end of life.

Results

Major underlying and any mention causes of death for persons aged 20+ years, Colchester, 1998-2005

Cause of death	Underlying Cause Only		Any Mention	
	Number of deaths	% of total deaths	Number of deaths	% of total deaths*
Cancer	1,084	29.8%	1,223	33.7%
Chronic ischemic heart disease	336	9.3%	708	19.5%
Acute myocardial infarction	310	8.5%	381	10.5%
Cerebrovascular disease (stroke)	298	8.2%	484	13.3%
Chronic obstructive pulmonary disease	203	5.6%	466	12.8%
Alzheimer's disease / dementia	181	5.0%	140	11.3%
Pneumonia	104	2.9%	446	12.3%
Diabetes	97	2.7%	363	10.0%
Congestive heart failure	88	2.4%	465	12.8%
Renal failure	53	1.5%	308	8.5%
Parkinson's disease	35	1.0%	73	2.0%

*Total of any mention is 146.7% since there are an average of 1.5 causes per decedent.

Deaths by age and sex, Colchester, 1998-2005
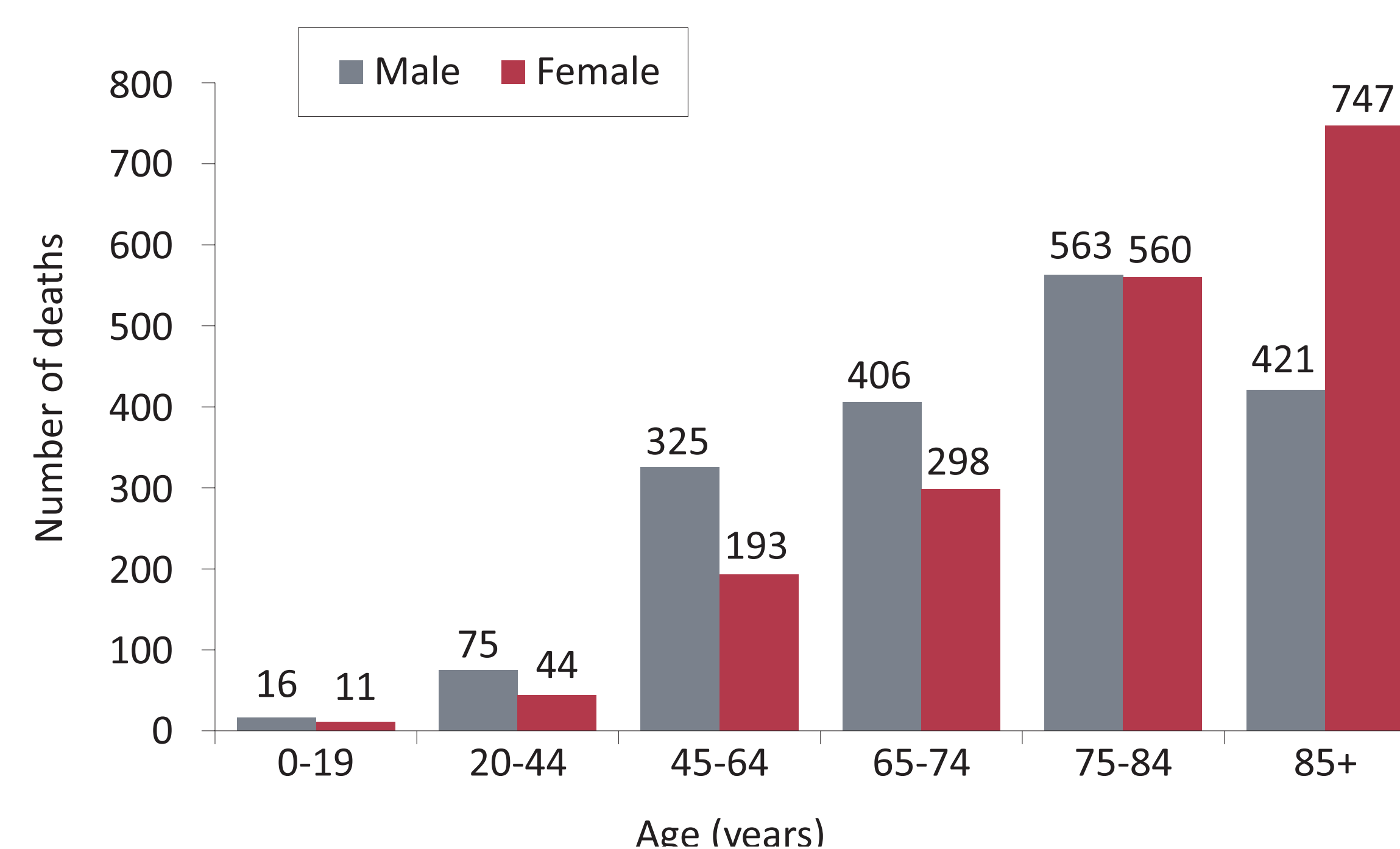
### Estimates of the potential palliative care population, Colchester, 2000-2005
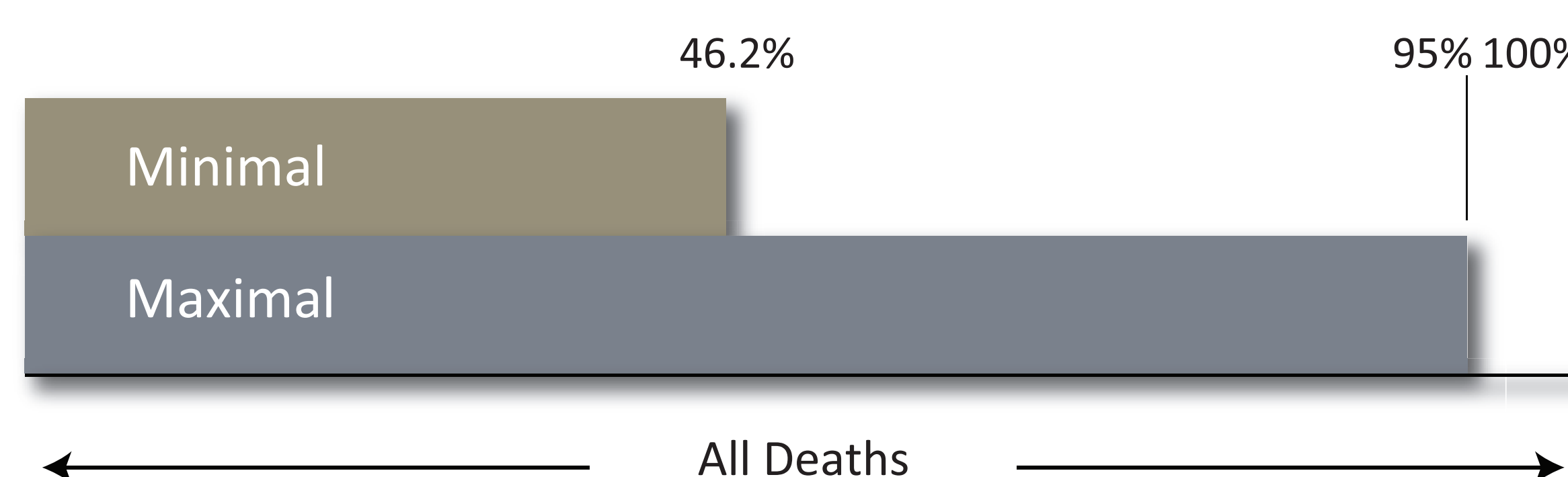
Method reference: Rosenwax LK, Blackmore AM, & Holman CDJ. (2005) Estimating the Size of a Potential Palliative Care Population. *Palliative Medicine*; 19 556-562.

Minimal Estimate: Persons with any of the following ten conditions: cancer, congestive heart failure (CHF), renal failure, chronic obstructive pulmonary disease (COPD), Alzheimer's, liver failure, Parkinson's, motor neurone disease, HIV/AIDS, Huntington's. Minimal estimate is 66% cancer.

Maximal Estimate: All but sudden deaths where sudden death is defined as poisoning, injury, or death during pregnancy, childbirth, the puerperium, or perinatal period. Maximal estimate is 32% cancer.

Trajectories of dying, Colchester, 2000-2005
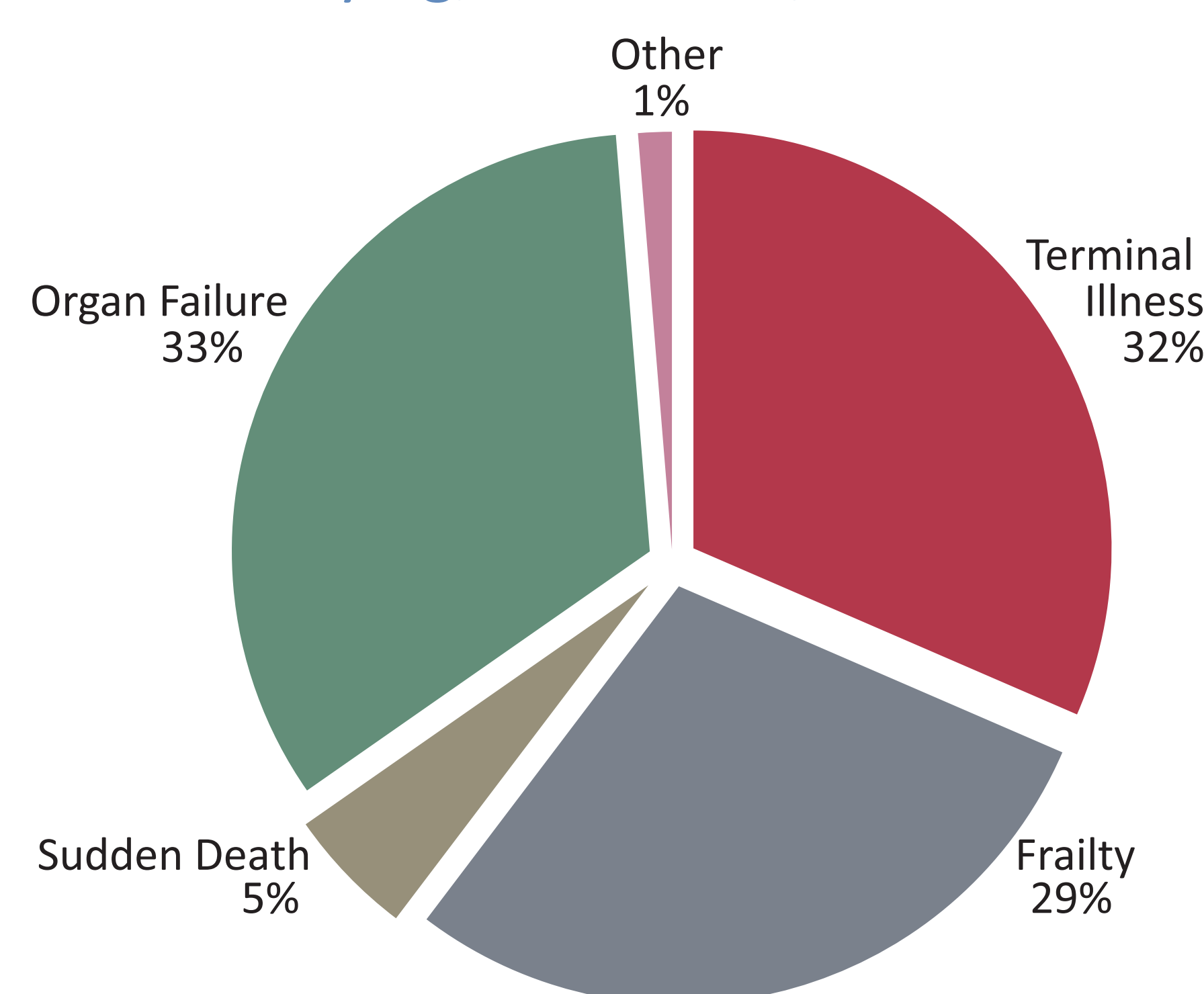
Methods reference: Lunney, JR, Lynn, J, Foley, DJ, Lipson, S, & Guralnik, JM (2003). Patterns of functional decline at the end of life. *Journal of the American Medical Association*, 289, 2387-2392.

Terminal illness (32%) is mainly cancer. Organ failure (33%) includes CHF and COPD. Frailty (29%) includes Alzheimer's, Parkinson's, multiple sclerosis and late effects of stroke.

Deaths in hospital by age and sex, Colchester, 1998-2005
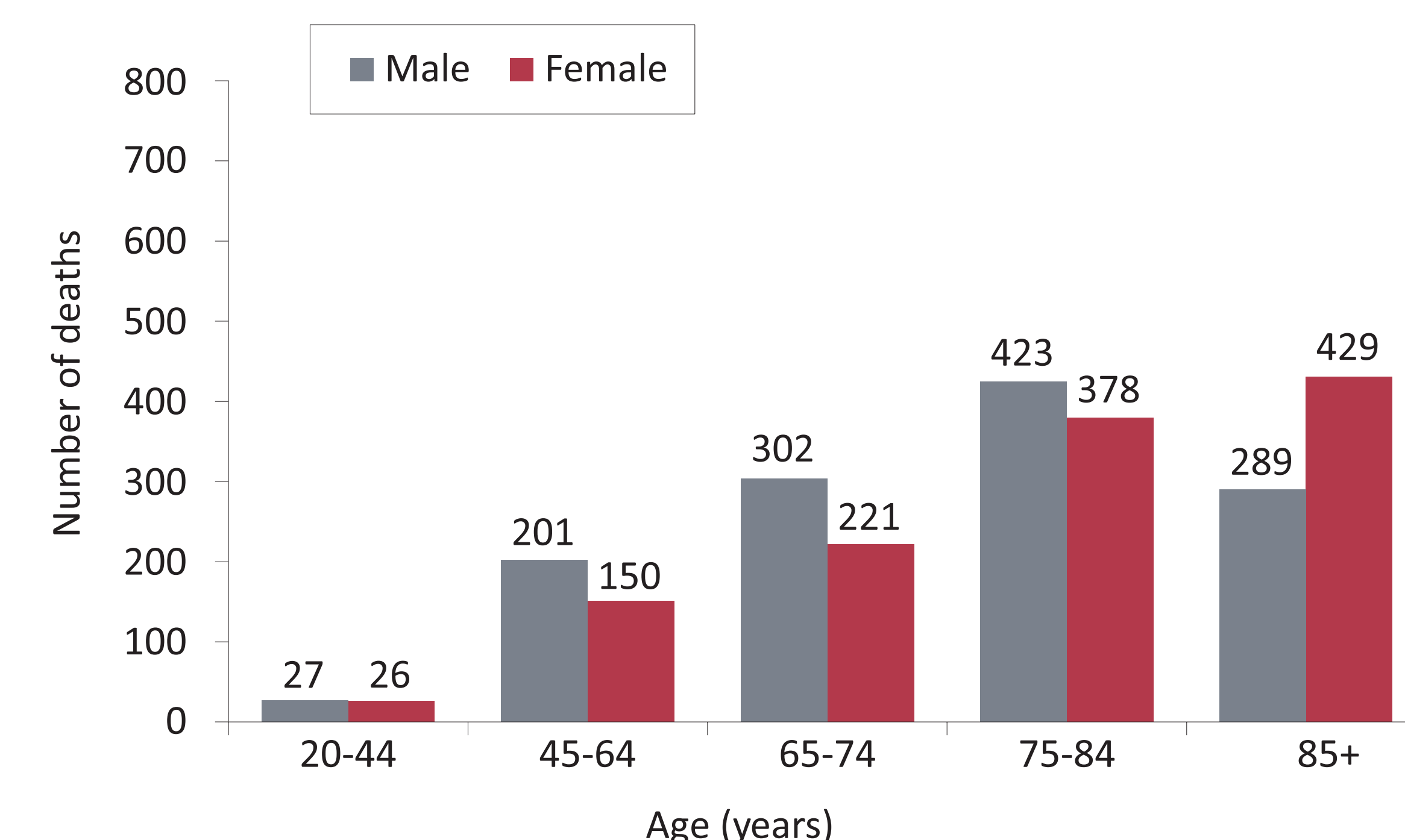
Percentage of deaths in hospital by age

	20 - 44	45 - 64	65 - 74	75 - 84	85 +	All ages
Male	36.0%	61.9%	74.4%	75.1%	68.7%	69.4%
Female	59.1%	77.7%	74.2%	67.5%	57.4%	65.4%
Both	44.5%	67.8%	74.3%	71.3%	61.5%	67.4%

Knowledge Translation

NELS.dal.ca

This analysis is being adapted by the Nova Scotia Department of Health to produce reports for all nine health districts in the province. The full Colchester report is available on the NELS ICE project 1 website at: nels.dal.ca/ice.html.

Next Steps

1) Analyze Colchester hospice palliative service data and compare to death certificate data, that is, compare potential need to actual clients served.

2) Link Colchester hospice palliative services and death certificate data with other administrative data sets (hospital, physician, home care, nursing home, medications, ...) to obtain a more detailed understanding of service use at end of life.

Conclusions

Death certificate data analysis is useful for planning hospice palliative care, and could be used in the future to monitor changes over time and differences between geographic areas. Hospice palliative care can be beneficial to persons dying of cancer and other chronic diseases.

Acknowledgement