

Patterns of Care of Neuroendocrine Tumors in Ontario: Health Services Delivery

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Background

- NETs has been shown to be increasing in incidence in Ontario, Canada
- Delayed diagnosis and treatment of NETs may result in increased health care utilization, medical costs and patient distress
- There is little data in terms of the impact of NETS on health care resources
- Ontario has a single-payer public health care system

Objective

- To analyze health care utilization among NETs patients in Ontario and variations in treatment

Methods

- A population based study was initiated using the Ontario Cancer Registry (OCR), cross linked with the Registered Persons Database and the Canadian Institute of Health Information Discharge Abstract Database
- All NETs diagnosed between January 1994 and December 2009 were collected using ICD-9 diagnostic codes and ICD-O histology codes
- Baseline demographic, clinical and outcomes data were abstracted
- Along with the above databases Ontario Health Insurance Premium (OHIP) billing database was analyzed

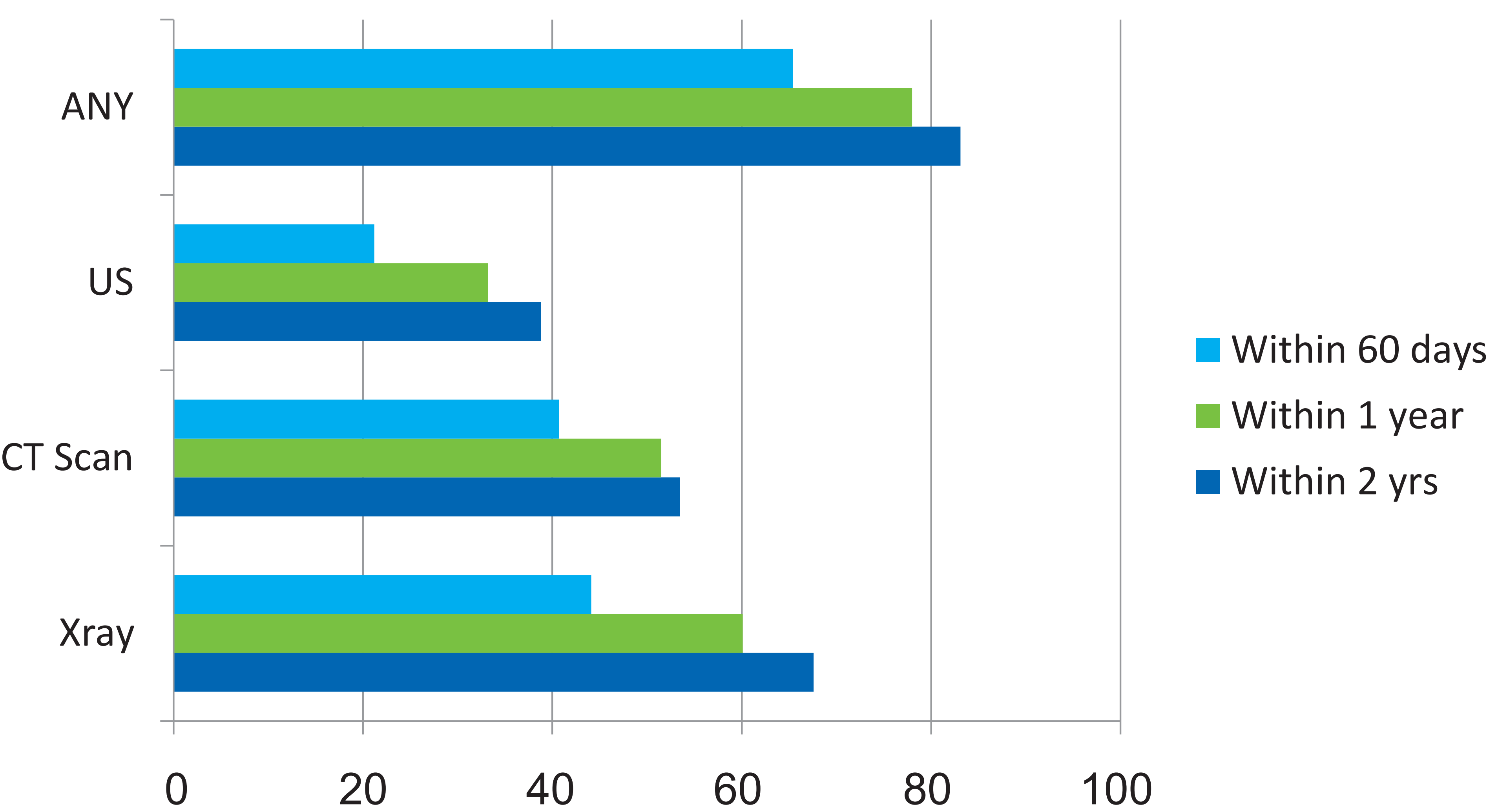
Results

- A total of N=5619 cases were identified
- Two years, 1 year and 60 days prior to diagnosis: 60.3%, 52.3%, and 35.3% of patients visited a hospital emergency room
- Two years, 1 year and 60 days prior to diagnosis: 83.1%, 78.0%, and 65.4% of patients had a radiological investigation
- 98% of patients visited a physician 60 days pre diagnosis
- Only 4% of patients visited an endocrinologist 60 days pre-diagnosis
- Common treatments including surgery (64%), chemotherapy (26%) and embolization (8%)

Figure 1:
Percent of NETs patients with Emergency Room Visits peri-diagnosis

	Bronchus/ Lung	Pancreas	Rectum	Small Intestine	Large Intestine	Stomach	Other	Overall
Within 2yrs	57.4	61.5	38.4	72.1	72.2	59.7	61.5	60.3
Within 1yr	49.4	53.3	25.8	66.0	64.7	53.0	53.3	52.3
Within 60 days	29.1	34.3	10.0	49.0	51.5	30.9	34.1	35.3

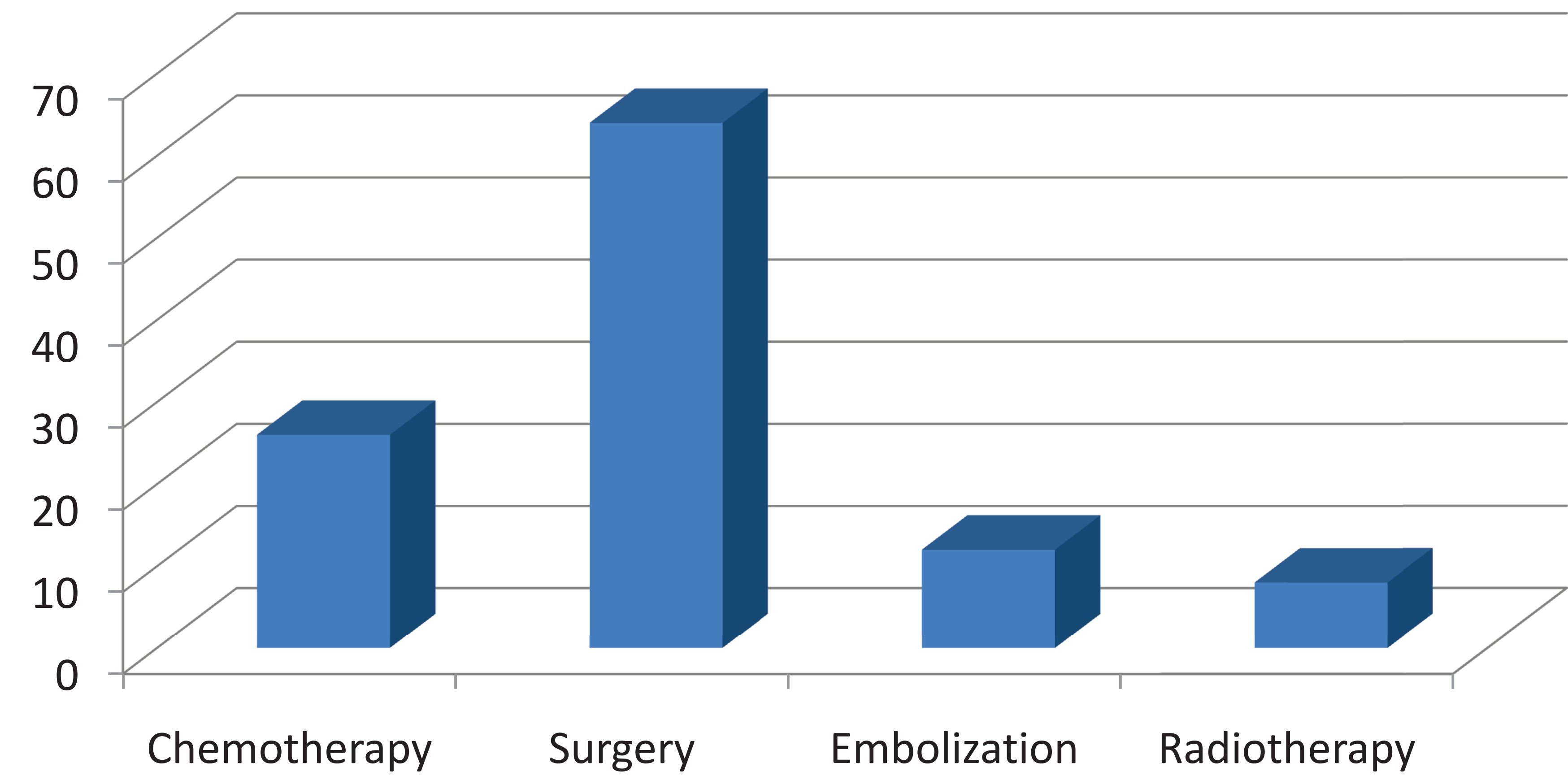
Figure 2:
Percent of NETs patients receiving radiological investigations in peri-diagnostic period



Percentage of patients visiting physicians 60 days pre diagnosis

Family Practice	83
General Surgery	44
Cardiologist	25
Gastroenterologist	22
Endocrinologist	4

Treatments received post diagnosis (by percentage)
Series 1



Discussion

- It appears patients have considerable health care utilization in the peri-diagnostic period
- This may be due to delayed diagnostic and symptoms related to excessive hormone secretion
- Patients are seeing numerous physician specialties in the peri-diagnostic period indicating no common clinical care pathway
- The increased number of peri-diagnostic visits is likely leading to considerable patient distress
- Treatment appears to vary greatly with surgery being the most predominant type of treatment although substantial numbers of patients are receiving chemotherapy despite little evidence on the efficacy of this treatment in most NETs patients

Conclusion

- NETs Patients appear to have a high level of health care utilization in the peri-diagnostic period
- Treatment offered varies greatly
- Further study into the effect on patient distress as well as the effect of treatment on clinical outcomes in this population is warranted