

## Background

- The US health care system lacks a sustainable funding mechanism for outpatient palliative care by payers.
- The project aims to design and test a model interdisciplinary palliative care program that:
  - demonstrates improved care quality for patients and families, and
  - generates a cost analysis and business plan that documents the quantitative benefits of outpatient palliative care

## Objective

To develop a sustainable funding model for the OHSU inter-disciplinary outpatient palliative care clinic (OPPC)

## Methods

### Design

- We retrospectively identified patients who had died of cancer using the OHSU Tumor Registry and compared those who were seen in our outpatient palliative care clinic with those who were not. This yielded a sample of 99 OPPC patients and 606 control patients. We randomly selected 107/606 control for more in depth analysis.

### Study Population

- Inclusion Criteria**
  - Adult patients (age  $\geq$  18 years at DX) who died after 12/31/2013
  - Patients who received all their cancer treatment at OHSU
  - Malignant neoplasms including brain & CNS tumors and unknown primary sites
  - Primary malignancies with documented metastatic disease
- Exclusion Criteria**
  - Veterans Administration patients
  - Bone Marrow Sites or other sites without AJCC Stage

### Methods

- Collected clinical data from both the Tumor Registry and patient electronic medical records (EMR):
  - Patient demographics
  - Cancer Diagnosis and Treatment (defined using ICD-9 diagnosis codes)
  - End of life choices including Advance Care Planning and Hospice
- Charges and Revenue for the 6 months prior to patient death collected for all services billed by hospital and by faculty practice plan

### Primary exposure of interest

- Metastatic cancer patients with or without treatment by OPPC

### Primary outcome of interest

- Hospice enrollment and duration, Advance Care Planning, EOL cost

### Statistical analysis

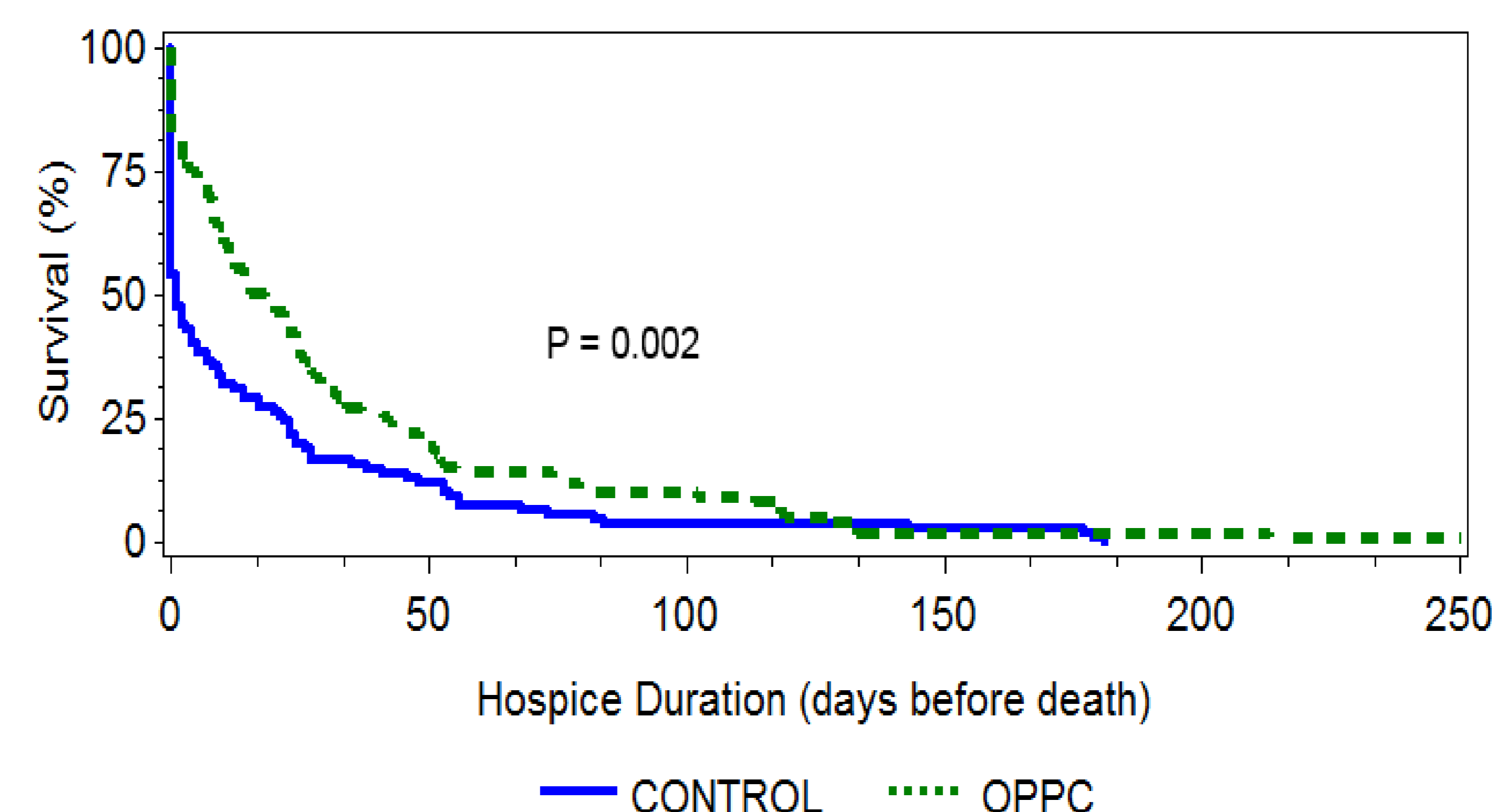
- Chi-square tests were used to assess differences between groups
- A p-value  $<0.05$  was considered statistically significant

## Preliminary Results

**Table 1:** Association between patient characteristics treated by outpatient palliative care

Characteristic	Received OPPC (n = 99) n (%)	Did not receive OPPC (n = 107) n (%)	p-value
Age $\geq$ 65 years	34 (34.3%)	54 (50.5%)	0.02
Male sex	61 (61.6%)	67 (62.6%)	0.88
Caucasian race	88 (88.9%)	95 (88.8%)	0.98
Not Hispanic or Latino	95 (96.0%)	102 (95.3%)	0.63
Resides w/in metro area	75 (75.8%)	64 (59.8%)	0.01
<b>Cancer diagnoses</b>			<b>0.01</b>
Lung	23 (23.2%)	23 (21.5%)	
Biliary & Pancreas	22 (22.2%)	8 (7.5%)	
Liver	6 (6.1%)	14 (13.1%)	
Head & Neck	4 (4.0%)	9 (8.4%)	
Brain	9 (9.1%)	4 (3.7%)	
Kidney & Bladder	3 (3.0%)	7 (6.5%)	
Colon & Rectum	5 (5.1%)	3 (2.8%)	
Other	27 (27.3%)	39 (36.4%)	

**Figure:** Comparison of hospice duration between patients receiving outpatient palliative care and control patients



## Preliminary Results (cont'd)

**Table 2:** Palliative Care Quality Measures

Outcomes	Received OPPC n (%)	Did not receive OPPC n (%)	p-value
Advanced Care Planning document in EMR	65 (65.7%)	37 (34.6%)	$<0.001$
Enrolled in Hospice	83 (83.4%)	59 (55.1%)	$<0.001$
Died Inpatient	10 (10.1%)	19 (17.8%)	0.11
Declined Hospice	3 (3.0%)	4 (3.7%)	

## Summary of Findings

- Problem 1: How to define a comparison group
  - Solution: Compare clinical metrics and cost in the last 6 month for metastatic cancer patients with or without OPPC treatment
- Tried to partner with a payer to access EOL cost data
  - Problem 2: Payer unable to identify deceased metastatic cancer patients and had only a small percentage of OPPC patients
- Tried using Tumor Registry & institution financial records
  - Problem 3: We don't know cost of care beyond OHSU. Since at least 15% of OPPC & 45% of the Control patients had EOL care outside OHSU our cost estimate is inaccurate.

## Conclusions

- The benefits of outpatient palliative care are significant:
  - 84% of OPPC enrolled in hospice versus 55% of Control
  - Median hospice duration for OPPC patients was 18 days versus 1 day for Control population
  - 66% of OPPC patients had an Advance Care Planning document in their electronic medical record versus 35% of Control
- However, we couldn't effectively estimate the financial benefit of outpatient palliative care using institution data and had to rely on quality measures in our business plan.

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## Disclosures

The authors have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.