HOSPITAL AND MEDICAL CARE DAYS IN PANCREATIC CANCER

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INTRODUCTION

- Pancreatic cancer is currently the 4nd leading cause of cancer deaths in the United States
- Estimated 43,140 new cases of pancreatic cancer in 2010
- Estimated 36,800 deaths from pancreatic cancer in 2010
- Overall 5-year survival for patients with pancreatic cancer is <5%

HOSPITAL DAYS IN PANCREATIC CANCER

INTRODUCTION

- Depending on the stage at presentation, physicians and patients have a wide variety of treatment options, including surgery, chemotherapy, and radiation
- Approximately 25-30% of patients with locoregional disease undergo surgical resection
  - Improves median survival from 6 months to 13-19 months
  - Improves overall survival from <5% to 15-20%
- Approximately 1/3 of patients with metastatic disease receive chemotherapy
  - Improves median survival from 3-4 months to 5-7 months

HOSPITAL DAYS IN PANCREATIC CANCER

INTRODUCTION

- Surgery, chemotherapy, and radiation offer limited survival benefit and significant risks
  - Surgical complications: 30-40%
  - Surgical mortality: 2-5%
- Toxicities or complications from treatment may negate the benefit of marginally prolonged survival

INTRODUCTION

- Previous studies have focused on the survival benefit of various interventions for pancreatic cancer
- Resource utilization with regard to hospital days or days in medical care (seeing a physician, getting a test, or in the hospital) has not been well described
- Information regarding expected hospital and medical care days may help patients and physicians when making treatment decisions

GOAL

- Describe the total number of days in the hospital and days receiving medical care in the first year after diagnosis of adenocarcinoma of the pancreas

METHODS: PATIENTS

- Surveillance, Epidemiology, and End Results (SEER) database with linked Medicare claims
- Patients aged 66 years or older diagnosed with adenocarcinoma of the pancreas between 1992-2005
- Enrollment in Medicare Part A and Part B without HMO for 12 months before and 24 months after diagnosis or until death

METHODS: STAGING

- SEER historic stage (locoregional vs. distant disease)
- Patients with unknown stage disease (19.6%) analyzed separately, with results similar to patients with distant disease
  - Therefore, distant and unknown analyzed together
- Tumor characteristics based on the denominator of patients with data available

METHODS: HOSPITAL AND MEDICAL CARE DAYS

- Hospital and medical care days assessed by month for each patient from the date of diagnosis to one year after diagnosis
- Total days receiving any kind of medical care:
  - Physician visits (PCP, GI, oncology, surgeon)
  - Hospitalizations
  - Diagnostic or therapeutic procedures (CT, MRI, ERCP, ultrasound, biopsy, chemotherapy, radiation)
- Patients who entered hospice were censored

METHODS: HOSPITAL AND MEDICAL CARE DAYS

- Hospital or medical care days per person-month:

$$\frac{\text{Total number of days incurred by the cohort}}{\text{Total number of observation days contributed by the cohort in a month}} \times 30$$

METHODS: STATISTICAL ANALYSIS

- Summary statistics calculated for entire cohort
- Patients stratified by:
  - Stage
  - Treatment strategy (surgery vs. no for locoregional, chemotherapy vs. no for distant)
  - Duration of survival (0-3 months, 3-6 months, 6-12 months, ≥12 months)

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RESULTS: PATIENT DEMOGRAPHICS

Patient Demographics	N=25,476
Age (y), mean ± SD	77.6 ±7.3
Female gender	14,841 (58.3%
Race (white)	21,007 (82.5%)
Marital Status (married)	12,161 (47.7%)
% Census Tract Below Poverty Line, mean ± SD	11.3% ± 10.1%
Median Income of Census Tract ($), mean	47,548
% Census Tract with <12 years Education, mean ± SD	19.4% ± 13.5%

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RESULTS: TUMOR CHARACTERISTICS

Tumor Characteristics	N=25,476
Size (cm), mean ± SD	4.3 ± 2.5
Tumor Stage	
Locoregional	8,152 (32.0%)
Distant	12,331 (48.4%)
Unknown	4,993 (19.6%)

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RESULTS: TREATMENT

Treatment	N=25,476
Surgical Resection	
Overall (N=25,476)	2,328 (9.1%)
Locoregional (N=8,152)	1,999 (24.5%)
Distant/Unknown (N=17,324)	329 (1.9%)
Chemotherapy	
Overall (N=25,476)	8,075 (31.7%)
Locoregional (N=8,152)	3,932 (48.2%)
Distant/Unknown (N=17,324)	4,143 (23.9%)

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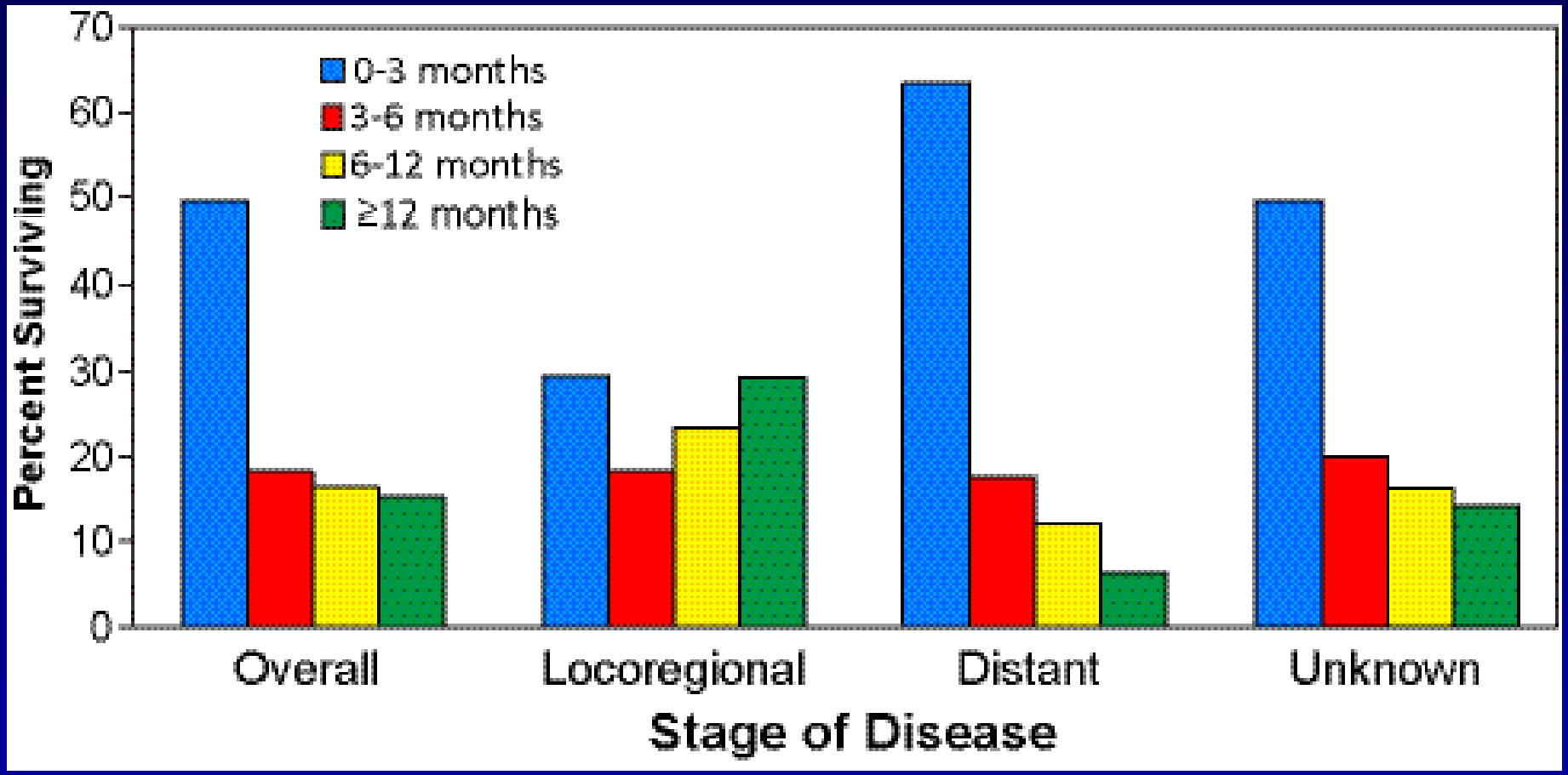
RESULTS: SURVIVAL



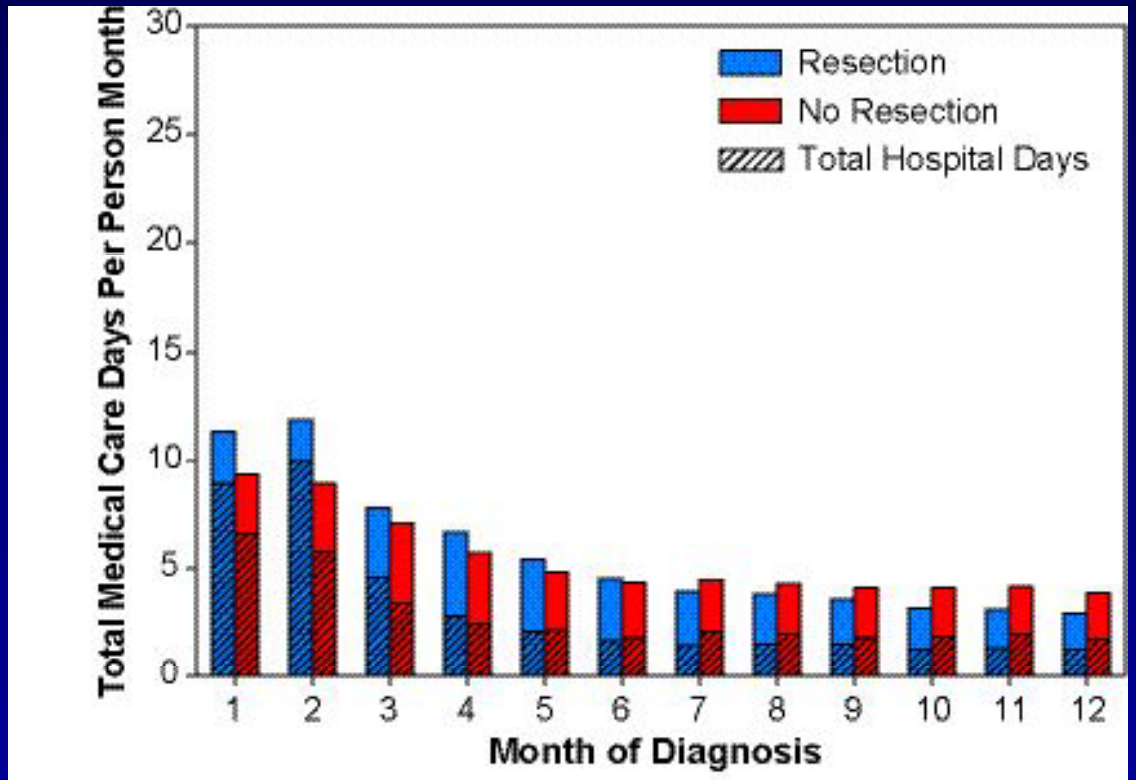
HOSPITAL DAYS IN PANCREATIC CANCER

RESULTS: HOSPITAL AND MEDICAL CARE DAYS IN THE OVERALL COHORT

Month of Diagnosis	Number Censored	Number at Risk	Observation Days	Total Hospital Days	Total Medical Care Days	Hospital Days Per Person-Month	Medical Care Days Per Person-Month
1	4,825	20,651	715,163	153,176	213,985	6.43	8.98
2	5,717	14,934	524,620	110,950	159,245	6.34	9.10
3	3,000	11,934	399,641	49,780	92,109	3.73	6.91
4	1,919	10,015	327,802	30,711	64,921	2.81	5.94
5	1,396	8,619	278,921	21,046	46,955	2.26	5.05
6	1,108	7,511	241,293	15,939	37,273	1.98	4.63
7	923	6,588	211,390	14,088	31,671	2.00	4.49
8	837	5,751	185,063	11,712	26,533	1.90	4.30
9	660	5,091	162,843	9,734	22,232	1.79	4.10
10	561	4,530	144,435	8,373	18,960	1.74	3.94
11	453	4,077	129,088	7,611	16,782	1.77	3.90
12	413	3,664	116,165	6,395	14,216	1.65	3.67

HOSPITAL DAYS IN PANCREATIC CANCER

RESULTS: HOSPITAL AND MEDICAL CARE DAYS IN LOCOREGIONAL PANCREATIC CANCER

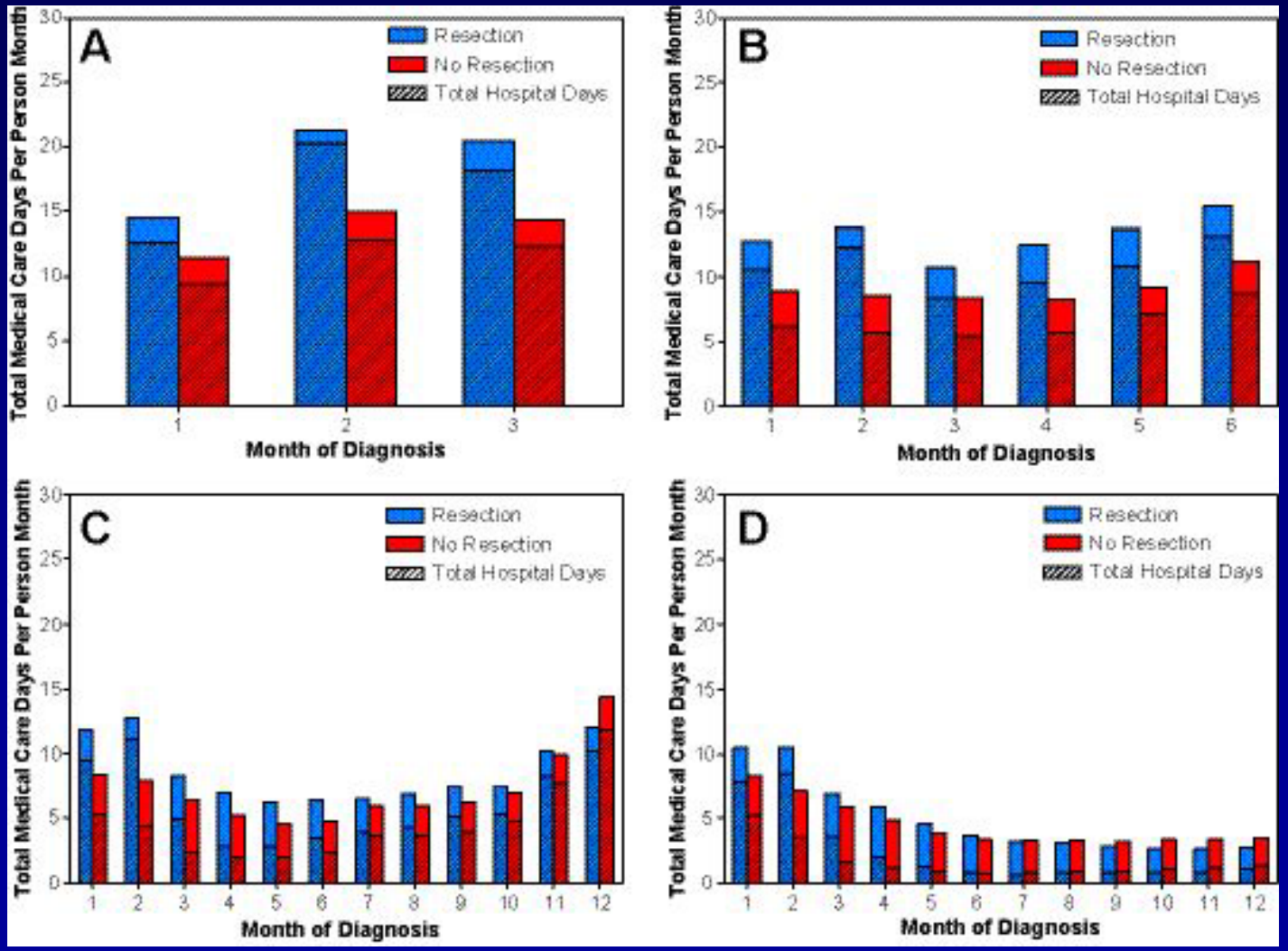


Number Surviving to the Beginning of Each Month

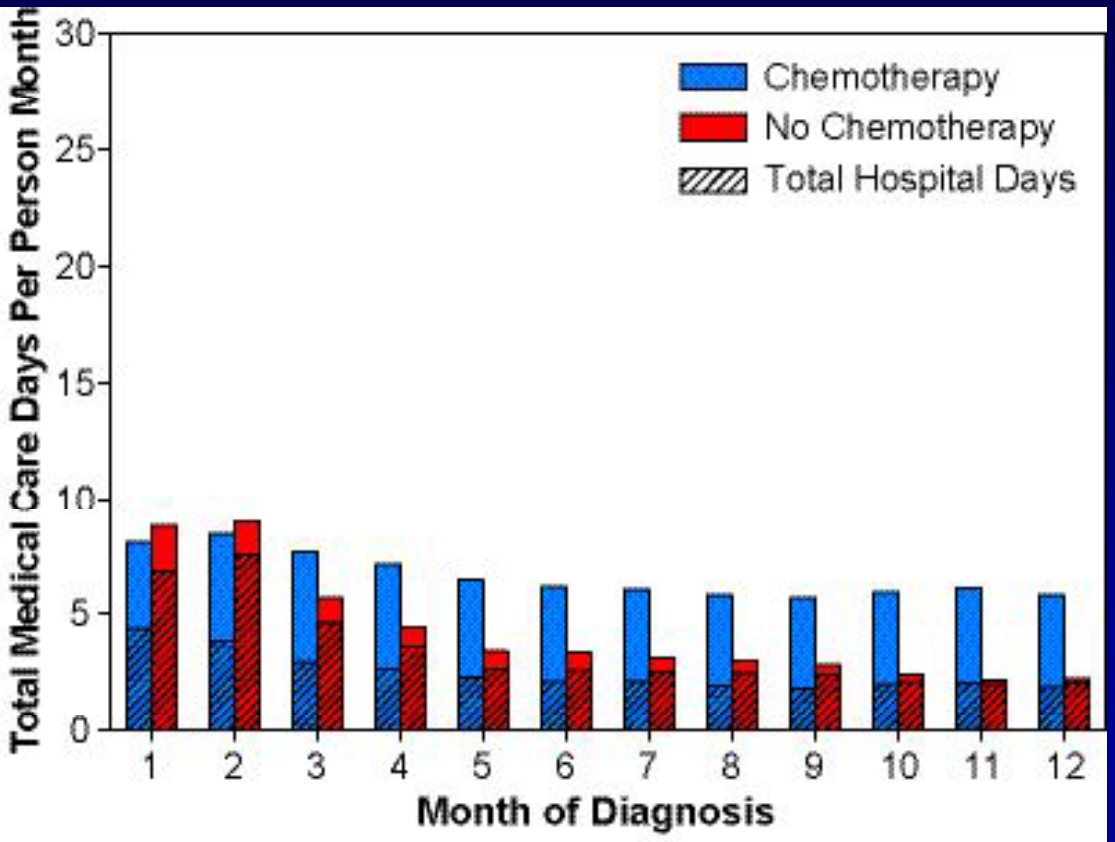
Month of Diagnosis	1	2	3	4	5	6	7	8	9	10	11	12
Resection	1999	1939	1831	1770	1707	1642	1561	1502	1424	1339	1269	1216
Non-resection	6153	5340	4276	3577	3121	2737	2410	2112	1833	1622	1414	1256

HOSPITAL DAYS IN PANCREATIC CANCER

RESULTS: HOSPITAL AND MEDICAL CARE DAYS IN LOCOREGIONAL PANCREATIC CANCER



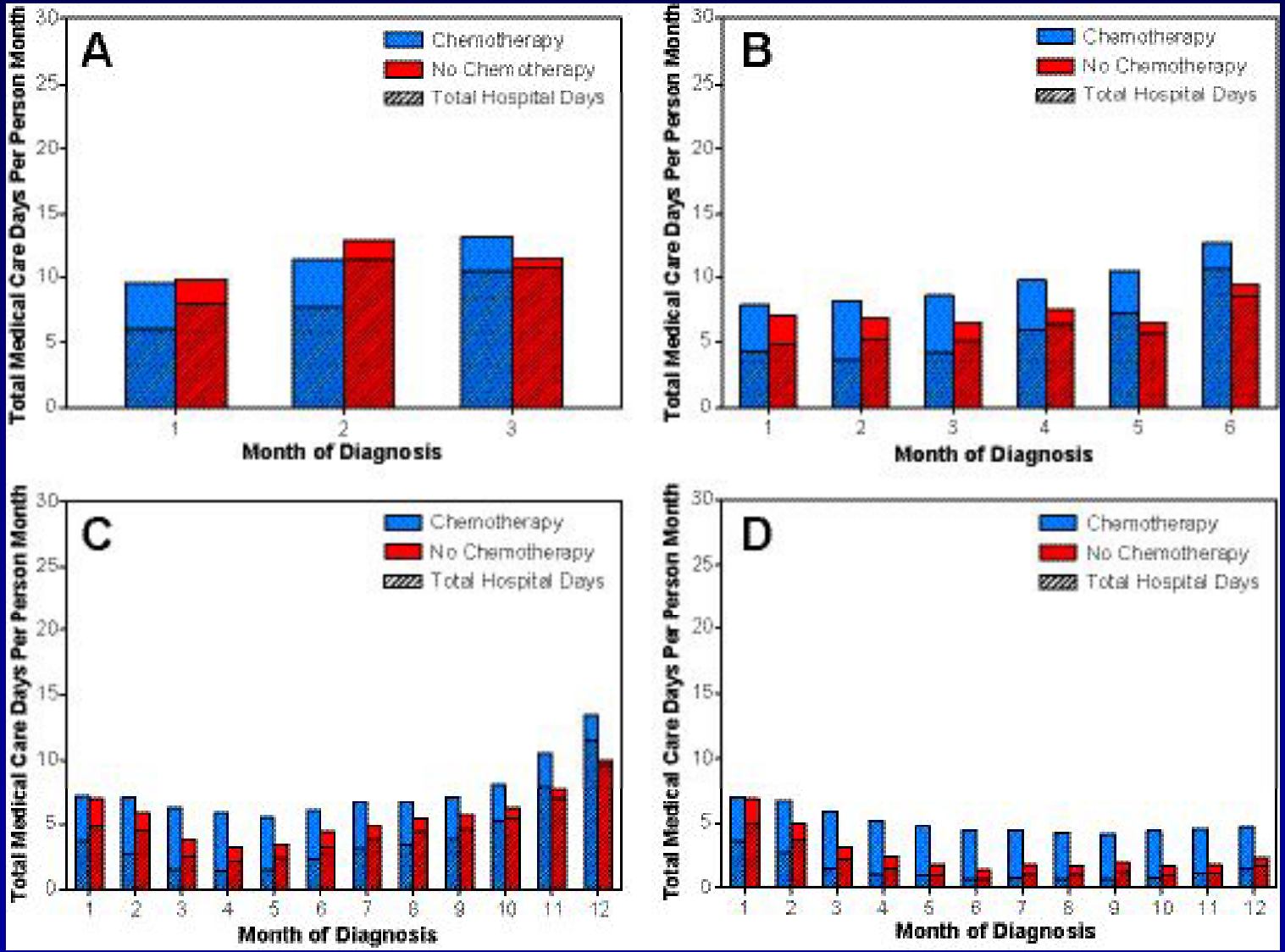
RESULTS: HOSPITAL AND MEDICAL CARE DAYS IN DISTANT PANCREATIC CANCER



Number Surviving to the Beginning of Each Month

Month of Diagnosis	1	2	3	4	5	6	7	8	9	10	11	12
Chemotherapy	4871	4736	4163	3498	2937	2456	2118	1799	1524	1300	1125	976
Non-chemo	12453	8636	4664	3089	2250	1784	1422	1175	970	830	722	629

RESULTS: HOSPITAL AND MEDICAL CARE DAYS IN DISTANT PANCREATIC CANCER



DISCUSSION

- Previous studies have focused almost entirely on the survival benefit of various treatment strategies
- Our study attempts to examine two factors that impact patients' lives after a diagnosis of pancreatic cancer: hospital days and days in medical care
- This information may be useful in decision-making regarding various treatment strategies

DISCUSSION

- The longer a patient survived, fewer days were spent in the hospital
- In all cases, hospital and medical care days increase at the end of life

DISCUSSION

- Patients who underwent surgical resection experienced more hospital and medical care days during the first four months after diagnosis
- In those who survived more than 6 months, unresected patients were admitted more often at the end of life
- Various tools are being developed to help predict which patients will survive long-term and would benefit from surgery
- Conversely, patients who might not survive longer than a few months should perhaps be spared a morbid surgery and a high number of hospital and medical care days

DISCUSSION

- Patients who received chemotherapy were in the hospital less often over the first three months after diagnosis, with an increase in hospital and medical care days at the end of life

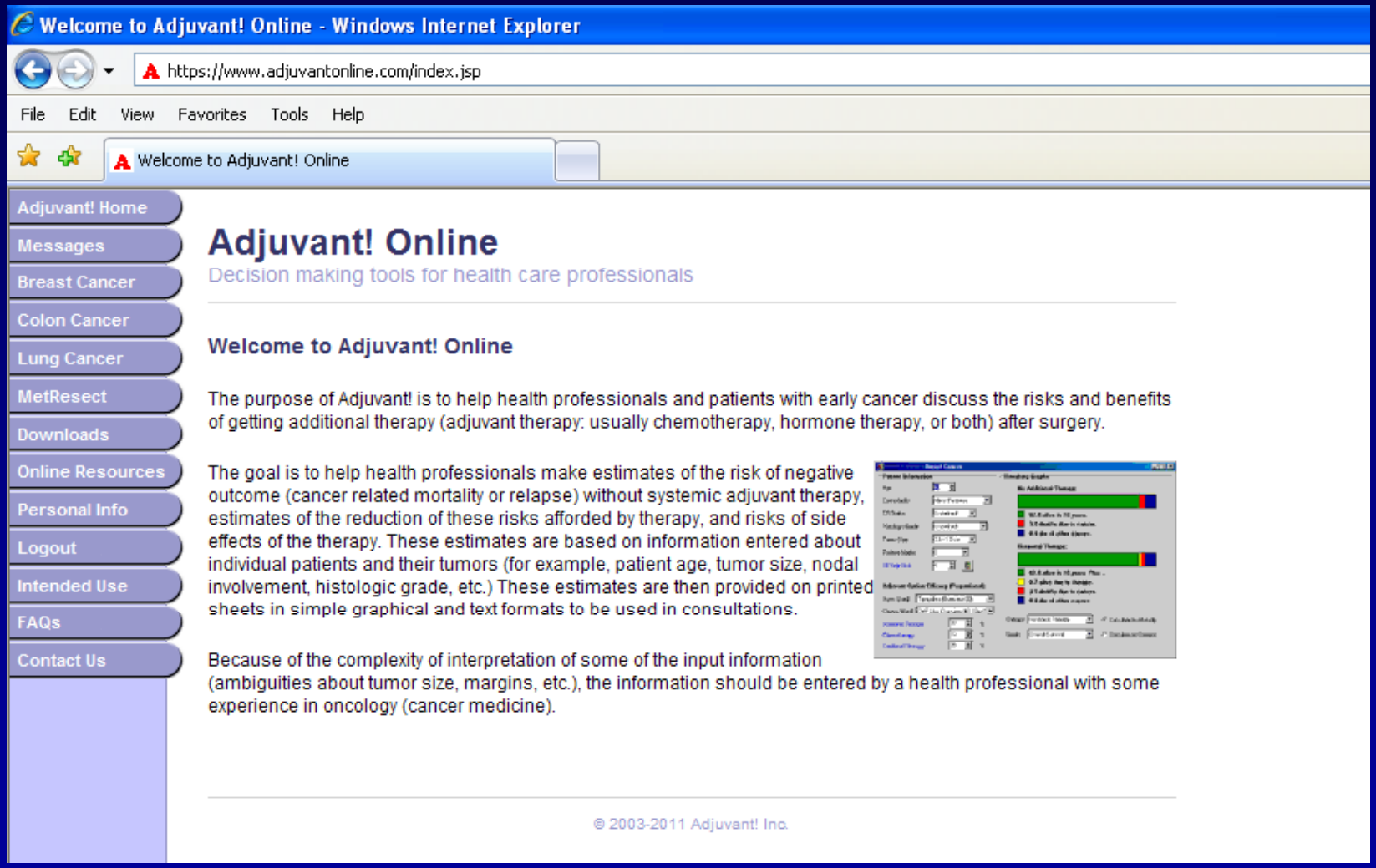
- These findings agree with our previous study, which noted an increase over time in ICU care and chemotherapy and a decrease in hospice use in patients dying of pancreatic cancer

DISCUSSION

- Currently, there are no decision-making tools for physicians and patients with pancreatic cancer
- For breast, colon, and lung cancer, physicians may access Adjuvant! Online for assistance in making treatment decisions

HOSPITAL DAYS IN PANCREATIC CANCER

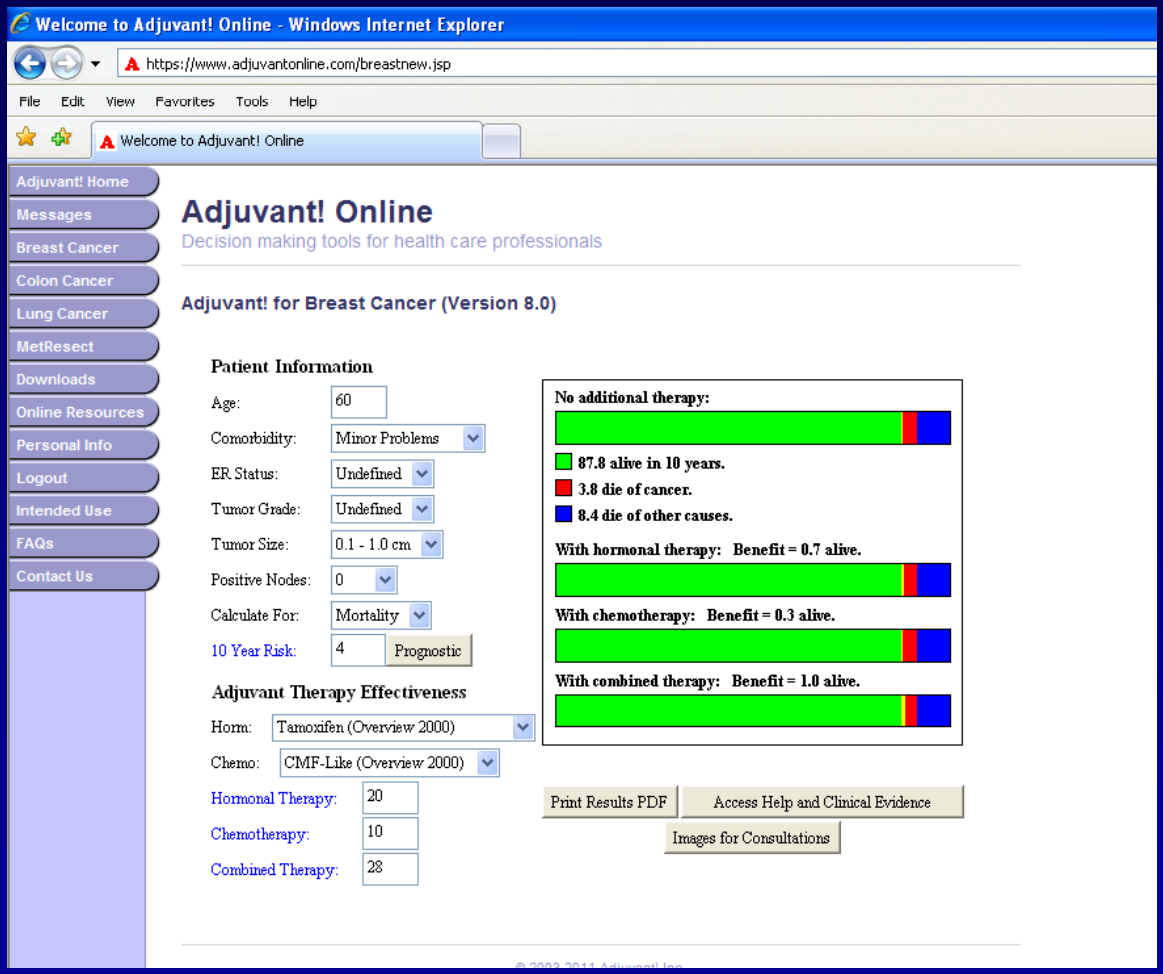
ADJUVANT ONLINE



HOSPITAL DAYS IN PANCREATIC CANCER

ADJUVANT ONLINE

- Available for breast, colon, and lung cancers
- Allows physicians to enter information regarding:
  - Age
  - Sex
  - Comorbidities
  - Size/depth of invasion
  - Lymph node status
  - Histologic grade
- Gives information regarding:
  - Stage
  - 5-year mortality
  - Cancer-related mortality
  - Risk reduction with additional therapies



DISCUSSION

- Our challenge is to provide pancreatic cancer patients meaningful data upon which treatment decisions can be made
- Patients should be made aware of potential treatment toxicities and complications and predicted survival
- The information from this study can guide patients with pancreatic cancer and their families and physicians in making personalized treatment decisions based on their individual preferences

DISCUSSION

- Hospice care improves symptom management and quality of life for patients at the end of life
- Patients with pancreatic cancer have been shown to have improved survival when enrolled in hospice
- Currently, hospice is underutilized in patients with pancreatic cancer
- For some patients, early enrollment in hospice may be preferred over aggressive, and possibly futile care with associated risks

LIMITATIONS

- Patients censored when they died or entered hospice
  - Did not take into account patients that entered then subsequently withdrew
- Day of diagnosis designated as the first day of the SEER month of diagnosis
  - Overestimate the number of observed days
  - Underestimate the number of hospital days per month for the first month
  - Not an issue for every month thereafter

LIMITATIONS

- Selection bias
  - Patients who are more fit for aggressive therapy are more likely to be offered therapy
  - Improved survival is likely a combination of treatment and healthier baseline status of treated patients
- This descriptive study likely accurately reflects real-life decision-making by physicians

CONCLUSION

- The goal in the treatment of pancreatic cancer should be to balance the quality and quantity of life according to individual preferences
- Our study is the first to use national, administrative data to quantify hospital and medical care days in patients with pancreatic cancer
- This information, in combination with specific patient preferences and predicted survival, can help patients with pancreatic cancer make individualized treatment decisions to maximize their quantity and quality of life

Questions?

THANK YOU!

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