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Net Cancer Survival in Florida: 2013-2017 with 5-Year Follow-Up

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Presentation objectives

- Establish the differences between regular survival calculations and net survival calculations
- Observe 5-year net survival rates among different groups at various primary sites
- Examine these results in the context of previous FCDS net survival analyses and national trends in relative survival rates

Introduction

- The FCDS has submitted its 2026 annual monograph to the Florida Department of Health
- This monograph examined trends in net cancer survival from cases diagnosed between 2013-2017
- Results were compared to net survival rates in Florida from previous monograph
  - Looked at cases diagnosed between 1999-2003
- These differences were compared with national trends

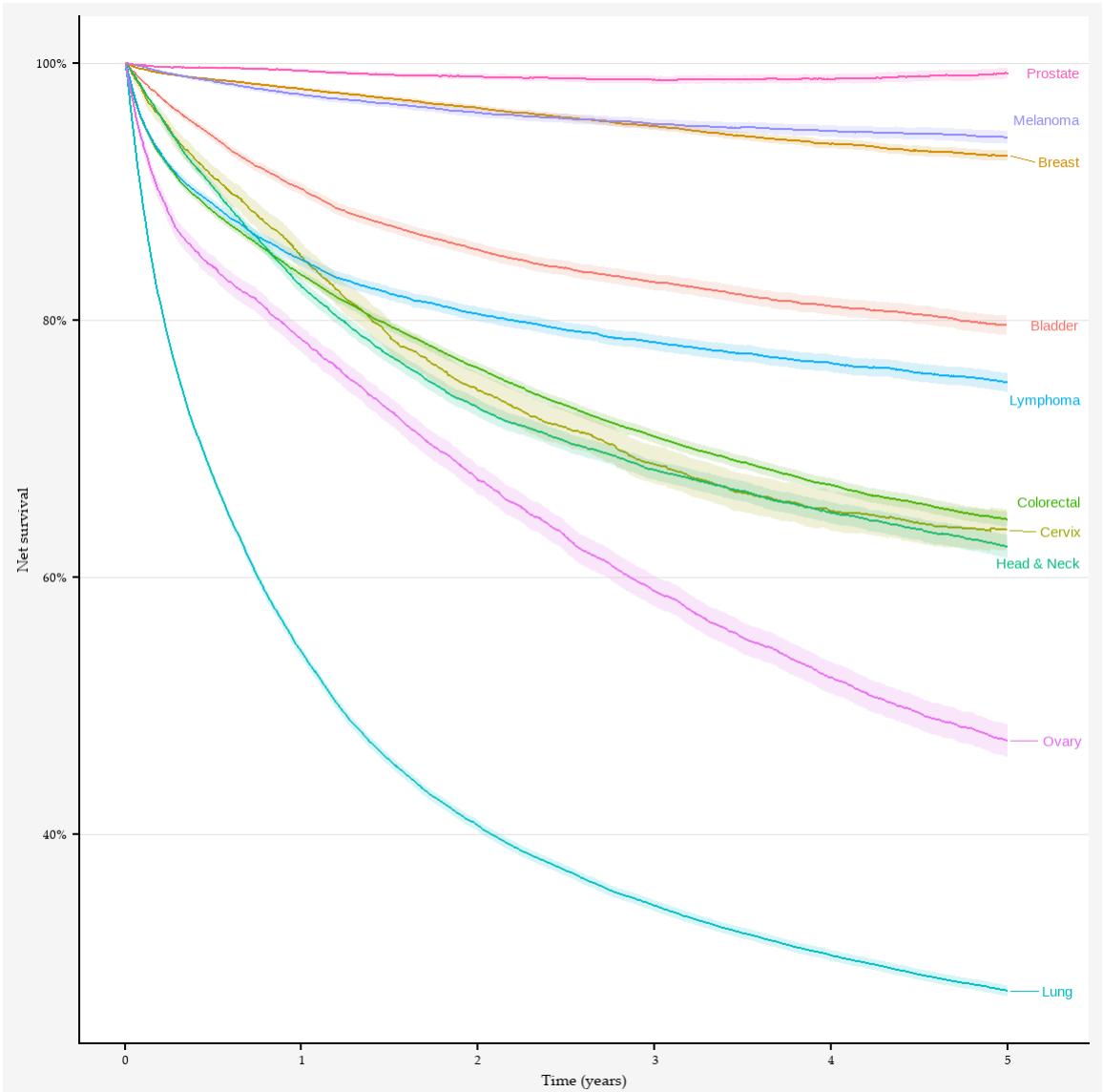
What is “net survival”?

- Survival measures look at how long people tend to live after receiving a cancer diagnosis
- Typically shown as a proportion or percentage
  - x% of people who receive a lung cancer diagnosis are still alive after five years
- Two ways to do this: absolute and relative
  - Absolute = raw proportion of patients still alive
  - Relative = proportion of patients still alive when accounting for deaths from something unrelated to cancer
- Net survival is relative survival taken to the extreme
  - Tries to account for all risk of dying from anything other than cancer
  - Impossible, but current stats methods do a pretty good job of estimating it

How do we measure net survival?

- Each patient is given a baseline % chance of survival for each year based on:
  - Age
  - Race/ethnicity
  - Sex
  - Calendar year
- Let’s say there are 100 patients with all of the same characteristics
  - Based on their profiles, 98.9% of them would normally survive after a year
  - 90 of them are alive after a year with melanoma
  - Net survival would be 90/98.9, not 90/100
- Each patient gives a weighted contribution to net survival calculation
  - Lower baseline survival chance -> higher weight

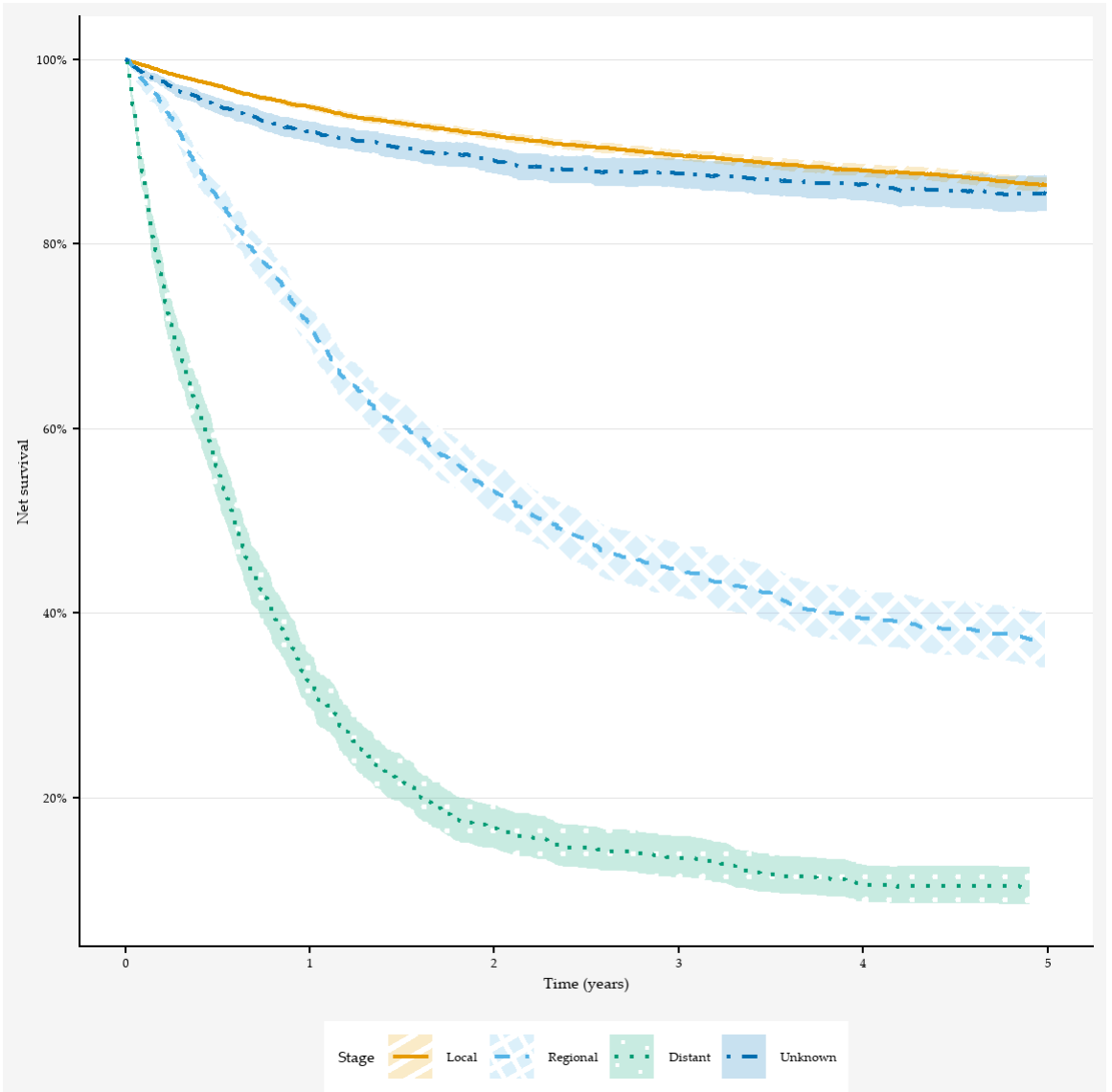
Overall 5-year survival by primary site



Florida Net Survival by Cancer Group 2013-2017

FCDS Cancer Site Group	Net Survival (%) 1-Year	3-Year	5-Year
Bladder	90.2	83.0	79.6
Breast	98.0	95.1	92.8
Cervix	85.0	68.8	63.7
Colorectal	83.6	71.0	64.5
Head & Neck	82.7	68.4	62.4
Lung	54.2	34.5	27.8
Lymphoma	84.7	78.3	75.2
Melanoma	97.6	95.3	94.2
Ovary	78.6	58.9	47.3
Prostate	99.4	98.7	99.2

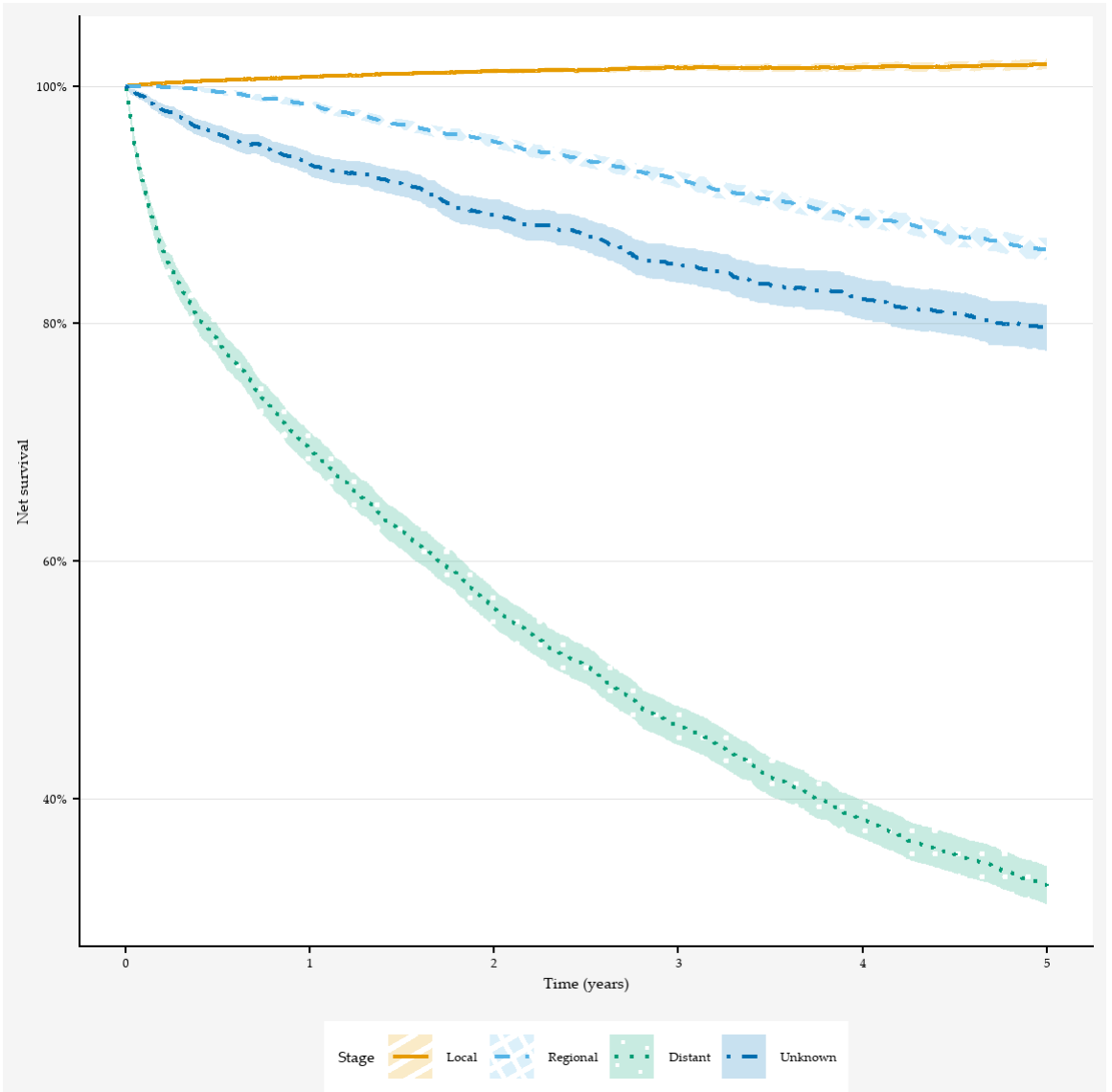
Bladder cancer



Florida Bladder Cancer Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	90.2	83.0	79.6	--
Stage at Diagnosis				
Local	94.9	89.6	86.4	Reference
Regional	71.3	44.6	37.0	5.55 (5.10-6.04)
Distant	32.7	13.4	10.3	14.58 (13.47-15.78)
Unknown	92.2	87.6	85.5	1.26 (1.13-1.40)
Sex				
Female	87.9	80.0	77.5	Reference
Male	91.0	83.9	80.3	0.85 (0.79-0.91)
Race				
White, non-Hispanic	90.8	83.7	80.5	Reference
Black, non-Hispanic	81.7	71.2	69.6	1.39 (1.23-1.57)
Hispanic, any race	90.1	82.0	77.2	0.98 (0.88-1.09)

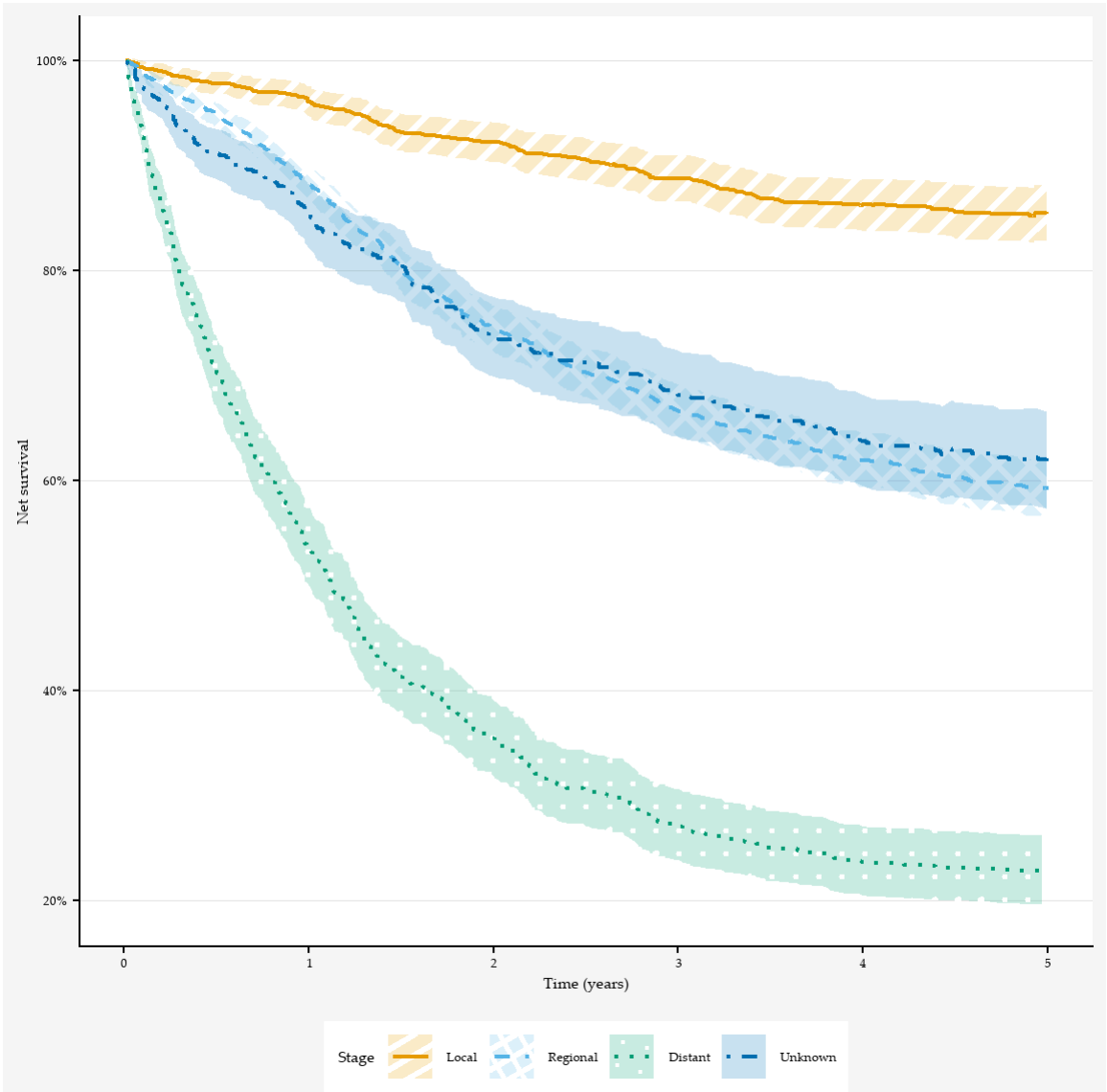
Female breast cancer



Florida Female Breast Cancer Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	98.0	95.1	92.8	--
Stage at Diagnosis				
Local	100.8	101.5	101.8	Reference
Regional	98.4	92.1	86.3	24.84 (17.73-34.81)
Distant	69.5	46.2	32.7	318.59 (228.20-444.77)
Unknown	93.4	84.9	79.6	49.61 (35.13-70.06)
Race				
White, non-Hispanic	98.2	95.9	93.9	Reference
Black, non-Hispanic	95.8	89.0	84.2	1.45 (1.35-1.57)
Hispanic, any race	98.8	95.5	93.2	0.84 (0.76-0.92)

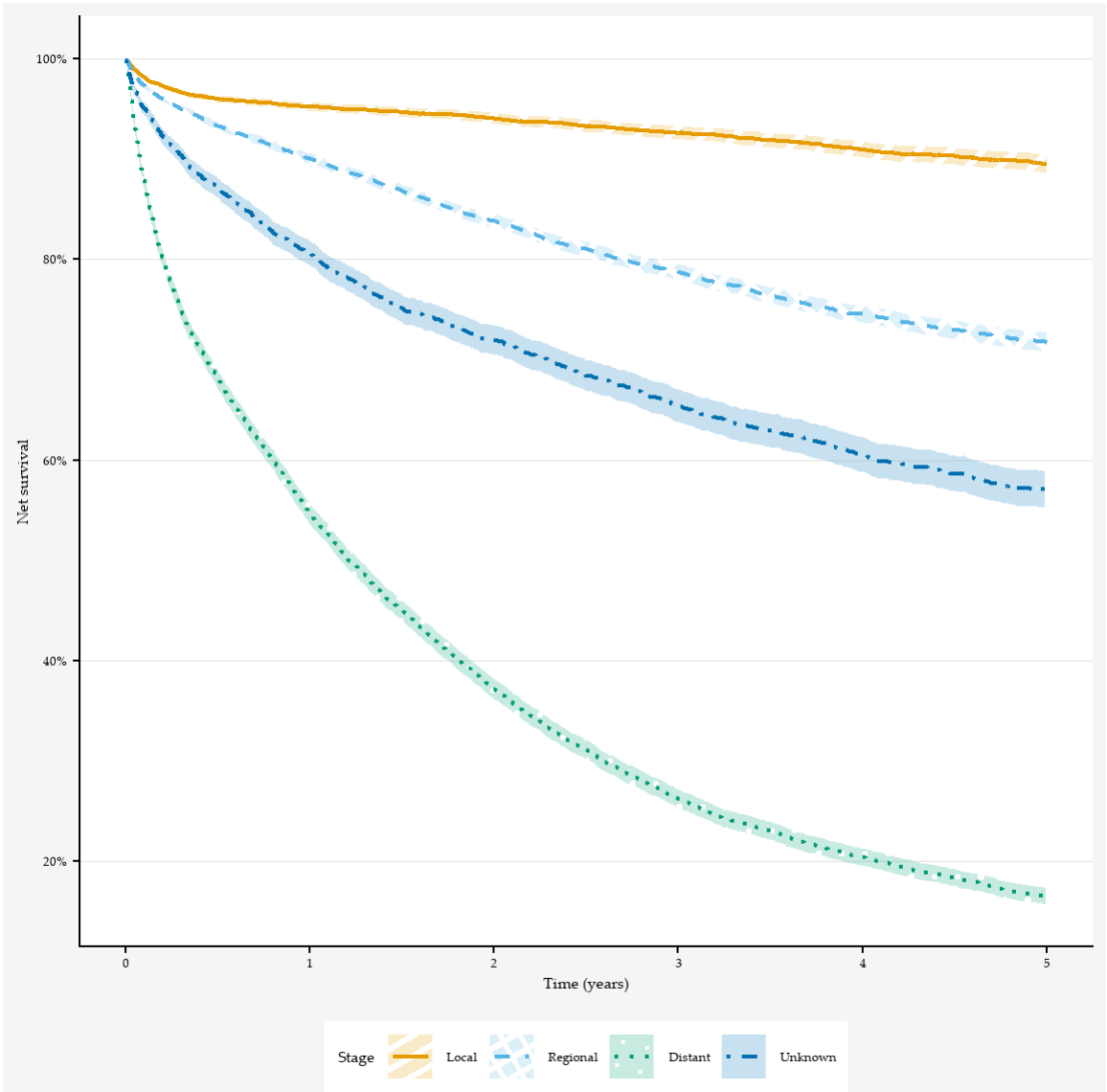
Cervical cancer



Florida Cervical Cancer Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	85.0	68.8	63.7	--
Stage at Diagnosis				
Local	96.1	88.7	85.4	Reference
Regional	88.2	66.6	59.5	5.42 (4.39-6.69)
Distant	53.7	27.0	22.7	19.67 (15.94-24.29)
Unknown	85.3	68.2	61.8	5.57 (4.35-7.13)
Race				
White, non-Hispanic	83.9	67.4	62.1	Reference
Black, non-Hispanic	81.8	66.5	62.4	1.02 (0.89-1.17)
Hispanic, any race	91.2	74.6	68.6	0.68 (0.59-0.79)

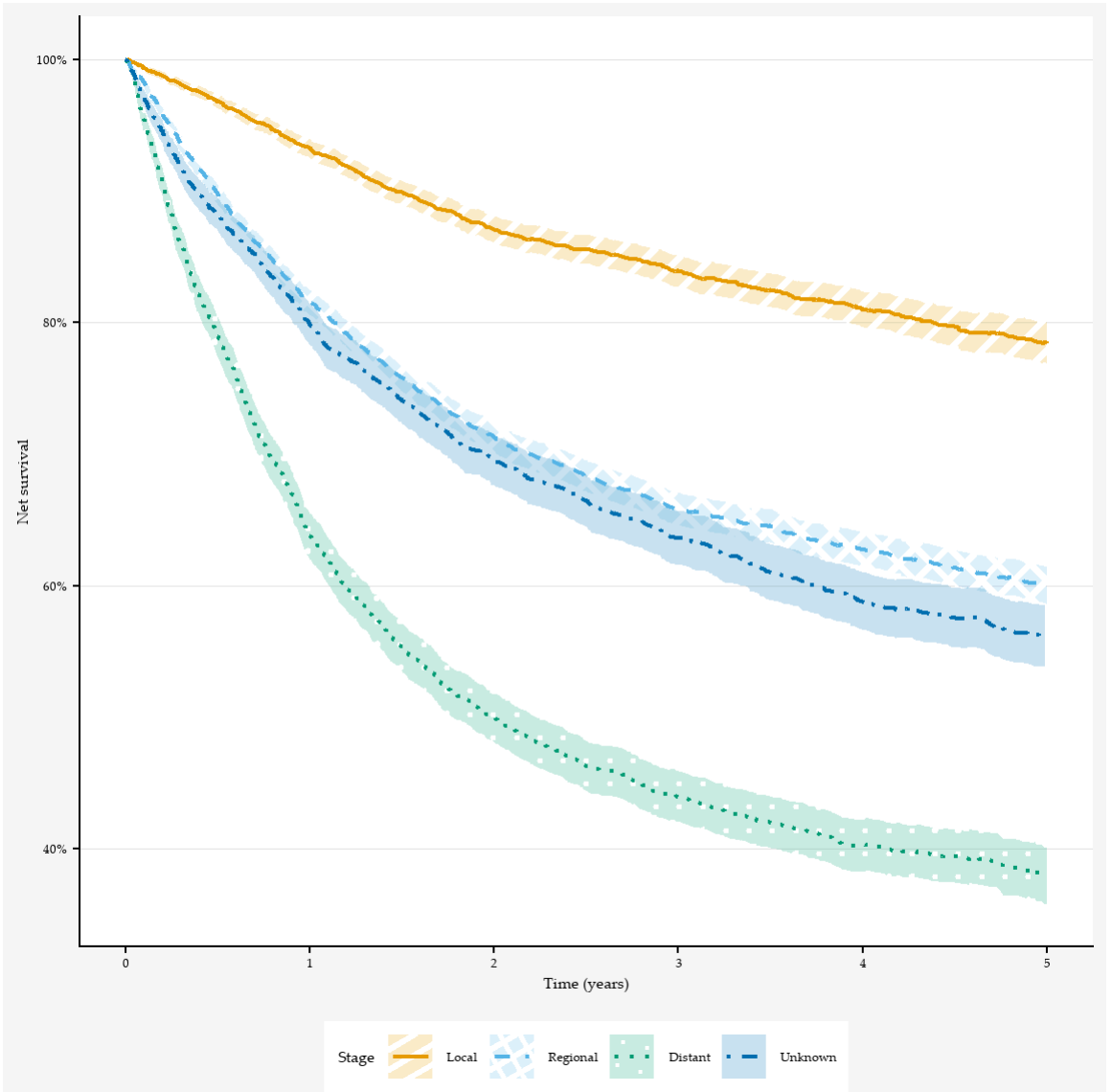
Colorectal cancer



Florida Colorectal Cancer Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	83.6	71.0	64.5	--
Stage at Diagnosis				
Local	95.2	92.6	89.5	Reference
Regional	90.1	78.7	71.7	2.49 (2.31-2.68)
Distant	54.8	26.2	16.5	14.40 (13.47-15.39)
Unknown	80.6	65.4	57.1	4.84 (4.46-5.26)
Sex				
Female	84.2	72.6	66.6	Reference
Male	83.1	69.7	62.7	1.02 (0.99-1.06)
Race				
White, non-Hispanic	83.2	70.9	64.5	Reference
Black, non-Hispanic	81.7	66.8	59.6	0.95 (0.90-1.00)
Hispanic, any race	86.7	74.9	68.5	0.78 (0.74-0.82)

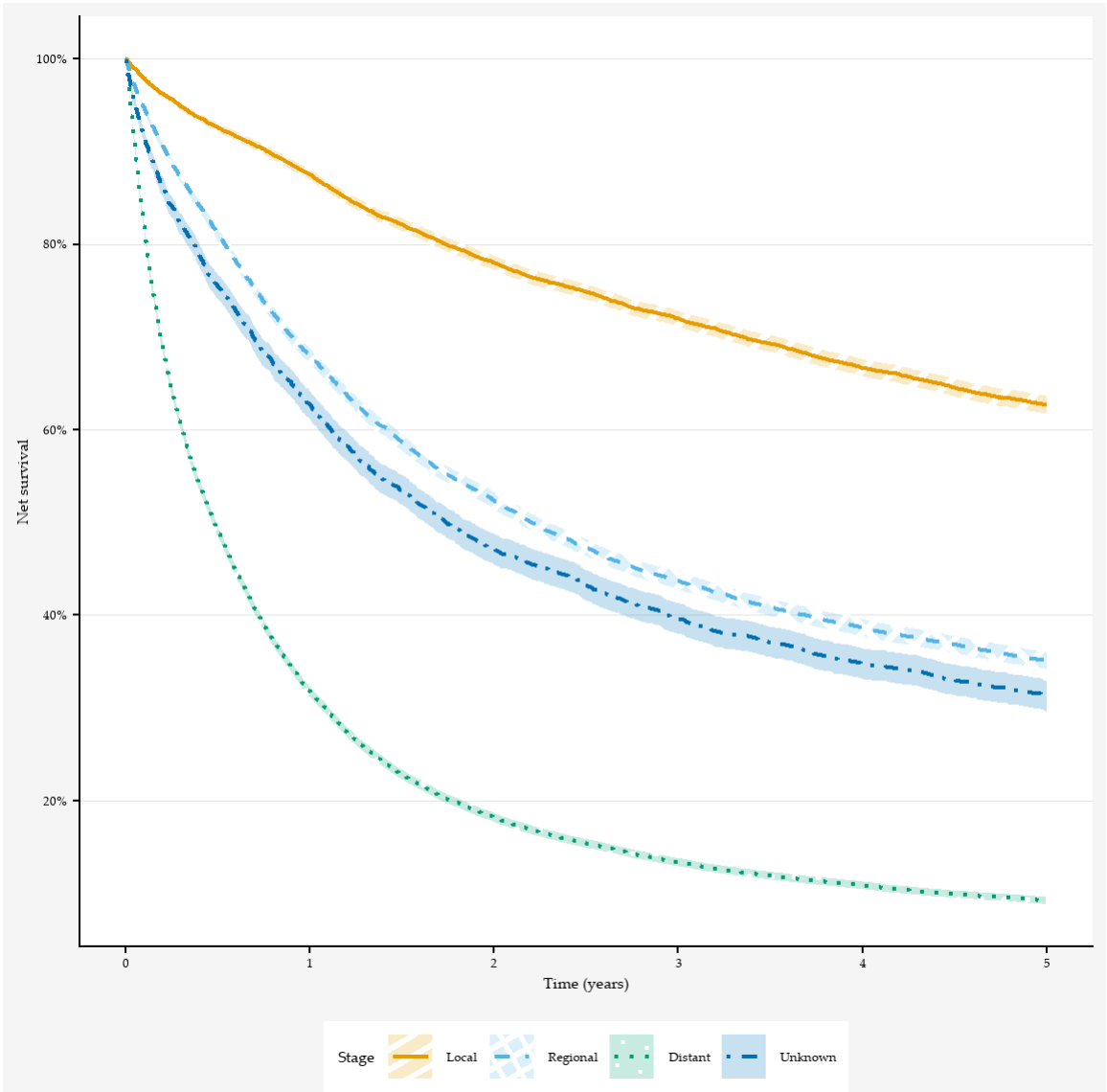
Head & neck cancer



Florida Head and Neck Cancer Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	82.7	68.4	62.4	--
Stage at Diagnosis				
Local	93.3	83.9	78.4	Reference
Regional	81.6	65.8	60.0	2.26 (2.08-2.46)
Distant	63.8	43.9	37.9	5.06 (4.64-5.52)
Unknown	79.9	63.6	56.2	2.82 (2.56-3.11)
Sex				
Female	82.4	68.9	63.0	Reference
Male	82.7	68.1	62.1	0.90 (0.85-0.96)
Race				
White, non-Hispanic	83.0	69.0	62.9	Reference
Black, non-Hispanic	75.5	58.3	52.3	1.31 (1.21-1.43)
Hispanic, any race	85.2	71.1	65.7	0.86 (0.78-0.93)

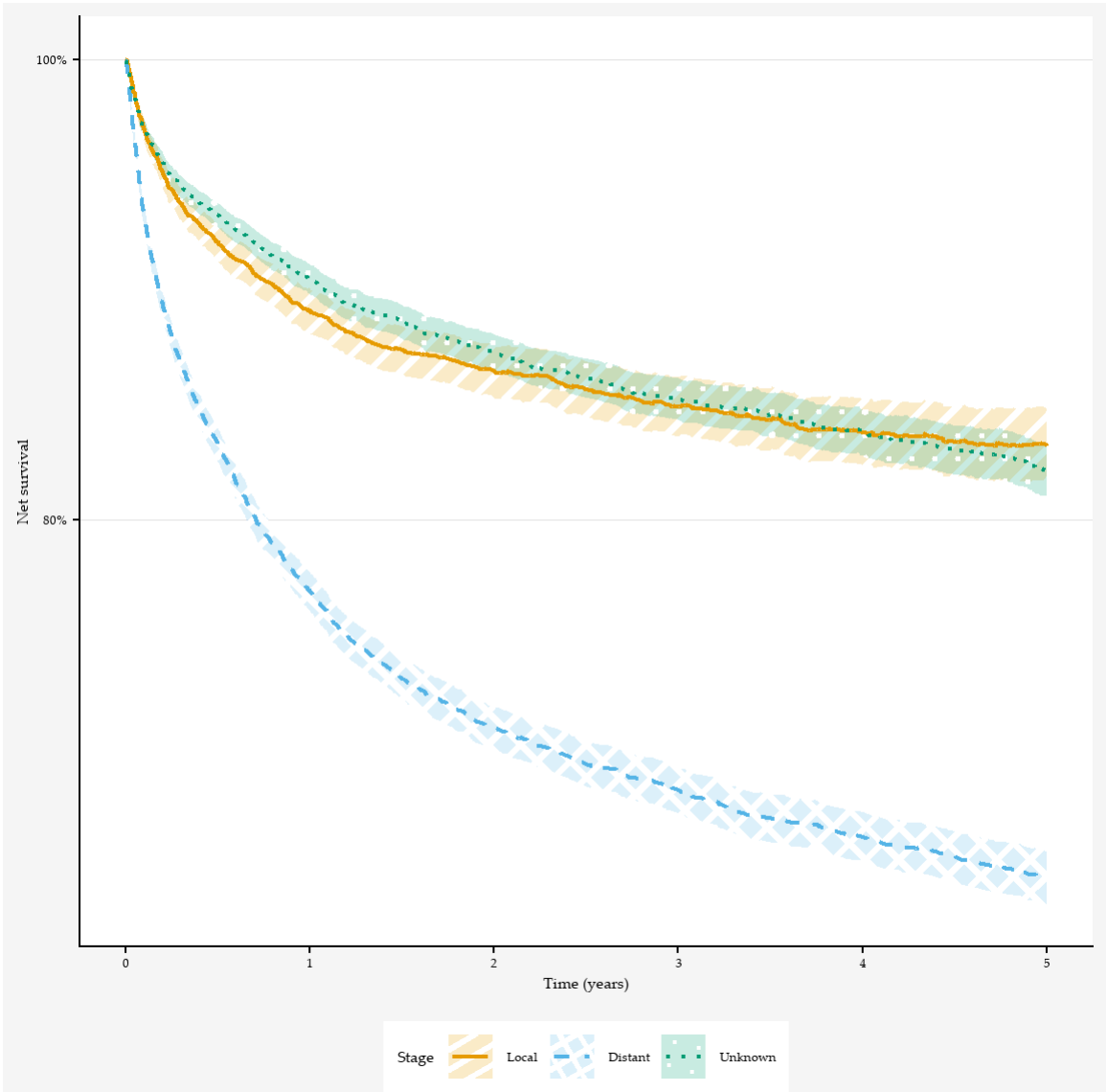
Lung & bronchus cancer



Florida Lung Cancer Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	54.2	34.5	27.8	--
Stage at Diagnosis				
Local	87.6	71.9	62.7	Reference
Regional	68.0	43.7	35.1	2.49 (2.40-2.58)
Distant	31.8	13.3	9.2	6.74 (6.51-6.97)
Unknown	62.7	39.6	31.2	2.99 (2.85-3.13)
Sex				
Female	59.1	39.6	32.9	Reference
Male	49.7	29.8	23.2	1.24 (1.21-1.26)
Race				
White, non-Hispanic	53.7	34.0	27.2	Reference
Black, non-Hispanic	51.3	30.4	24.3	0.96 (0.92-0.99)
Hispanic, any race	60.2	41.6	35.6	0.78 (0.76-0.81)

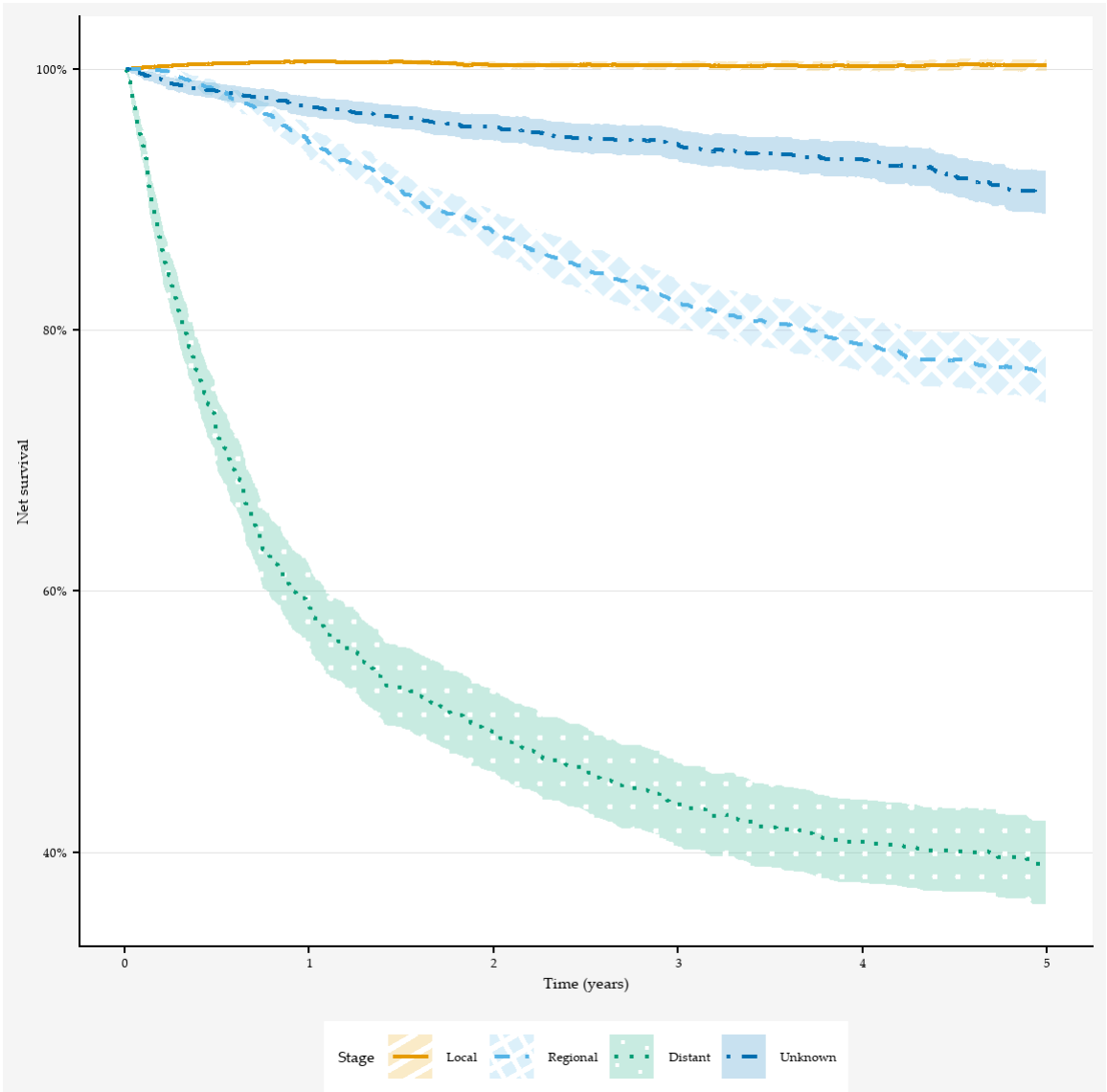
Non-Hodgkin’s lymphoma



Florida Non-Hodgkin's Lymphoma Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	84.7	78.3	75.2	--
Stage at Diagnosis				
Local	89.1	84.9	83.2	Reference
Distant	76.9	68.3	64.5	2.27 (2.08-2.48)
Unknown	90.5	85.3	82.2	0.95 (0.87-1.05)
Sex				
Female	86.2	81.0	78.3	Reference
Male	83.5	76.0	72.6	1.17 (1.10-1.24)
Race				
White, non-Hispanic	86.1	79.9	76.7	Reference
Black, non-Hispanic	74.9	66.6	62.5	1.53 (1.40-1.67)
Hispanic, any race	83.0	76.3	73.9	0.97 (0.89-1.06)

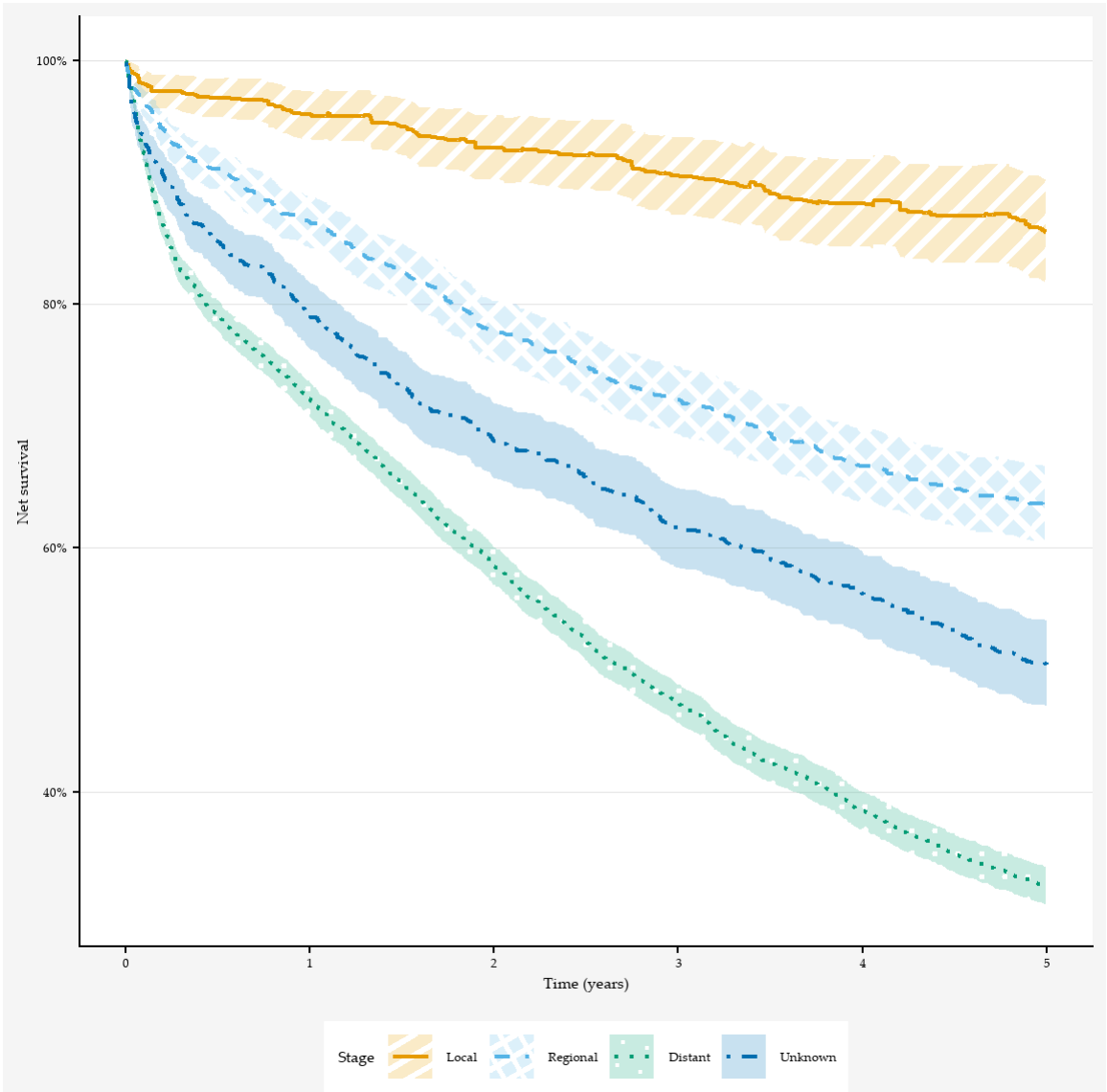
Melanoma



Florida Melanoma Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	97.6	95.3	94.2	--
Stage at Diagnosis				
Local	100.5	100.3	100.3	Reference
Regional	94.3	82.0	76.5	29.95 (20.64-43.45)
Distant	58.9	43.5	39.1	172.07 (120.95-244.80)
Unknown	97.1	94.2	90.5	13.79 (9.48-20.08)
Sex				
Female	98.3	96.9	96.1	Reference
Male	96.9	94.0	92.8	1.27 (1.13-1.44)
Race				
White, non-Hispanic	97.8	95.7	94.9	Reference
Black, non-Hispanic	85.4	78.6	74.2	1.63 (1.11-2.39)
Hispanic, any race	93.1	86.1	80.7	1.20 (0.97-1.49)

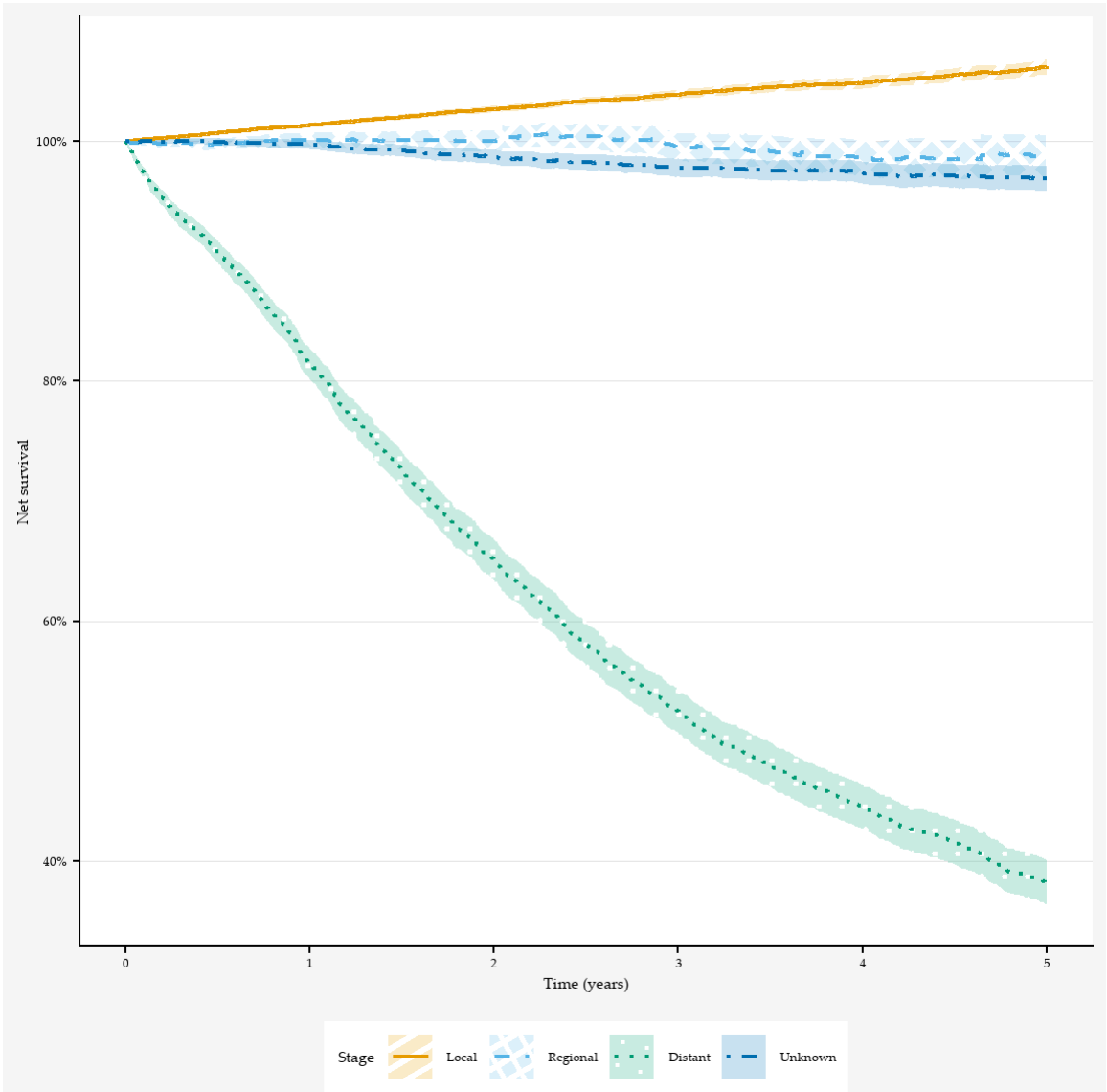
Ovarian cancer



Florida Ovarian Cancer Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	78.6	58.9	47.3	--
Stage at Diagnosis				
Local	95.5	90.5	85.9	Reference
Regional	86.7	72.1	63.5	4.06 (3.03-5.44)
Distant	72.3	47.2	32.3	13.41 (10.21-17.62)
Unknown	79.1	61.6	50.4	7.47 (5.59-9.99)
Race				
White, non-Hispanic	78.7	59.1	47.7	Reference
Black, non-Hispanic	71.4	51.0	39.2	1.20 (1.07-1.34)
Hispanic, any race	82.6	63.2	50.5	0.78 (0.70-0.87)

Prostate cancer



Florida Prostate Cancer Net Survival 2013-2017

	Net Survival (%)			
	1-Year	3-Year	5-Year	Excess Hazard Ratio (95% CI)
Overall				
All Stages	99.4	98.7	99.2	--
Stage at Diagnosis				
Local	101.3	103.8	106.2	Reference
Regional	100.1	99.5	98.8	3.97 (1.45-10.84)
Distant	81.5	52.5	38.2	1147.78 (588.61-2238.15)
Unknown	99.7	97.8	96.9	27.58 (13.76-55.28)
Race				
White, non-Hispanic	99.5	98.6	99.0	Reference
Black, non-Hispanic	99.2	99.5	100.7	0.98 (0.87-1.09)
Hispanic, any race	99.0	98.0	98.1	0.80 (0.70-0.92)

Comparison with earlier monograph

Five-Year Net Survival Rates (%) by Cancer Site: Patients Diagnosed 1999-2003 vs. Patients Diagnosed 2013-2017

	5-Year Net Survival (%)	
FCDS Cancer Site Group	**1999-2003**	**2013-2017**
Bladder	83.3	79.6
Breast	93.3	92.8
Cervix	65.7	63.7
Colorectal	71.1	64.5
Head & Neck	61.0	62.4
Lung & Bronchus	20.9	27.8
Non-Hodgkin's Lymphoma	66.1	75.2
Melanoma	90.7	94.2
Ovary	44.6	47.3
Prostate	101.1	99.2

Discussion

- Marked improvements for non-Hodgkin's lymphoma, lung cancer, and melanoma
  - Smaller improvements for head & neck and ovarian
- Notable drops in survival for bladder, cervical, and colorectal cancers
- Most trends match what's happening nationally
- One major exception stands out: **cervical cancer**
  - Negative survival trend in FL, positive survival trend nationally
  - Warrants further study

Conclusion

- Net survival calculations account for baseline chance of mortality and assign weights to patients based on that baseline chance
- 5-year net survival rates among different groups at various primary sites were presented in graphs/tables
- Trends in FCDS-observed net survival and national trends in relative survival rates were mostly consistent
  - Major exception was cervical cancer, where Florida is trending in the wrong direction

Any questions?

Thank you!