

Background

- Despite a projected 6% national growth in the nursing workforce, significant shortages are projected in New Jersey facing a deficit of over 23,000 nurses by 2031.
- The COVID-19 pandemic accelerated nurse turnover, particularly among early-career professionals, jeopardizing patient safety and increasing organizational costs.
- Objectives:**
 - Calculate time to leaving the hospital from 2018-2023, in two northeast urban hospital settings.
 - Evaluate predictors of nurse retention

Methods

- Design:** Retrospective cohort study of nurse retention 2018 -2023
- Setting:** Two urban hospitals in New Jersey
- Main outcome measures:**
 - Proportion of nurses who voluntarily resigned
 - Length of employment before leaving the hospitals
- Analysis:** Using deidentified HR data from 2018-2023, researchers calculated voluntary nurse resignations and conducted multivariable Cox proportional hazards regression analyses to estimate turnover.

Results

- Of 2737 nurses, the majority were hired at HUMC (2317,85%), were aged 20-29 years (1244,45%), female (2370,87%), white (1237,47%), or had a bachelor's degree in nursing (2274,83%)
- They worked in either the medical-surgical (1299,49%) or emergency department (365,13%).
- As of June 2023, 335 (12%) nurses transferred to other hospitals or other positions within the organization and 1,445 (53%) were retained at their hospital site.
- 957 (35%) nurses left the organization in a median (Mdn) time of 2302 days, 95% Confidence Interval (CI): 2246-2337

Table 1: Demographic Variables of Nurses, by transfer and retention status, 2018 to 2023, N=2737

Variables	Transferred		Retained		Total
	n (%)	n (%)	n (%)	n (%)	
	335 (12)	1445 (53)	957 (35)		2737
Site					*
HUMC	247 (11)	1285 (55)	785 (34)		2317 (85)
PMC	88 (21)	160 (38)	172 (41)		420 (15)
Age					*
20-29	93 (7)	826 (57)	325 (26)		1244 (45)
30-39	170 (17)	419 (41)	433 (42)		1022 (37)
40-49	44 (14)	124 (40)	143 (46)		311 (11)
>= 50	28 (17)	76 (48)	56 (35)		160 (6)
Gender					
Male	49 (13)	184 (50)	134 (37)		367 (13)
Female	286 (12)	1261 (53)	823 (35)		2370 (87)
Race/Ethnicity					*
Asian	80 (13)	342 (55)	197 (32)		619 (23)
Black	32 (12)	111 (40)	132 (48)		275 (10)
Hispanic	68 (13)	305 (56)	168 (31)		541 (20)
Other	3 (5)	50 (77)	12 (18)		65 (2)
White	152 (13)	637 (51)	448 (36)		1237 (45)
Education					*
Associates/Diploma	73 (24)	100 (33)	134 (44)		307 (11)
Bachelors	218 (10)	1279 (56)	777 (34)		2274 (83)
Masters or Higher	44 (28)	66 (42)	46 (30)		156 (6)
Clinical Unit					*
Ambulatory Care	23 (11)	132 (64)	52 (25)		207 (8)
Emergency Department	67 (18)	155 (42)	143 (39)		365 (13)
Intensive Care	34 (14)	163 (66)	49 (20)		246 (9)
Medical-Surgical	149 (11)	637 (50)	513 (39)		1299 (47)
Obstetrics/Gynecology	21 (11)	108 (57)	62 (32)		191 (7)
OR/PACU	14 (9)	84 (53)	61 (38)		159 (6)
Pediatric	27 (10)	166 (61)	77 (29)		270 (10)
Marital Status					*
Single	179 (10)	971 (56)	591 (34)		1741 (64)
Married	140 (16)	422 (48)	321 (36)		883 (32)
Divorced	9 (15)	25 (40)	28 (45)		62 (2)
Other	7 (14)	27 (53)	17(33)		51 (2)
Children					*
Yes	100 (15)	368 (54)	219 (32)		687 (25)
No	235 (12)	1077 (52)	738 (36)		2050 (75)
Commute in miles					
<12	144 (10)	800 (58)	445 (32)		1389 (51)
20-Dec	70 (11)	340 (53)	236 (36)		646 (24)
>=21	121 (17)	305 (44)	276 (40)		702 (26)
Time on current unit (Years)					*
<1	95 (16)	4 (1)	492 (51)		591 (22)
5-Jan	109 (10)	671 (62)	295 (27)		1075 (39)
>5	131 (12)	770 (72)	170 (16)		1071 (39)

Abbreviations (Table 1): HUMC: Hackensack University Medical Center, PMC: Palisades Medical Center, OR/PACU: Operating Room/Post-Anesthesia Care, * p<0.05

Abbreviations (Table 2): CI: Confidence Interval, HR: Hazards Ratio, HUMC: Hackensack University Medical Center, PMC: Palisades Medical Center, NA- Median time is not reached, ED: Emergency Department, OB/GYN: Obstetrics and Gynecology, OR/PACU: Operating Room/Post-Anesthesia
Model adjusted for: Site, Age, Race/Ethnicity, Clinical Unit, Education, and Children

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Figures 2a-2c: Time to Leaving hospital employment by Education, Hospital Site, and Children

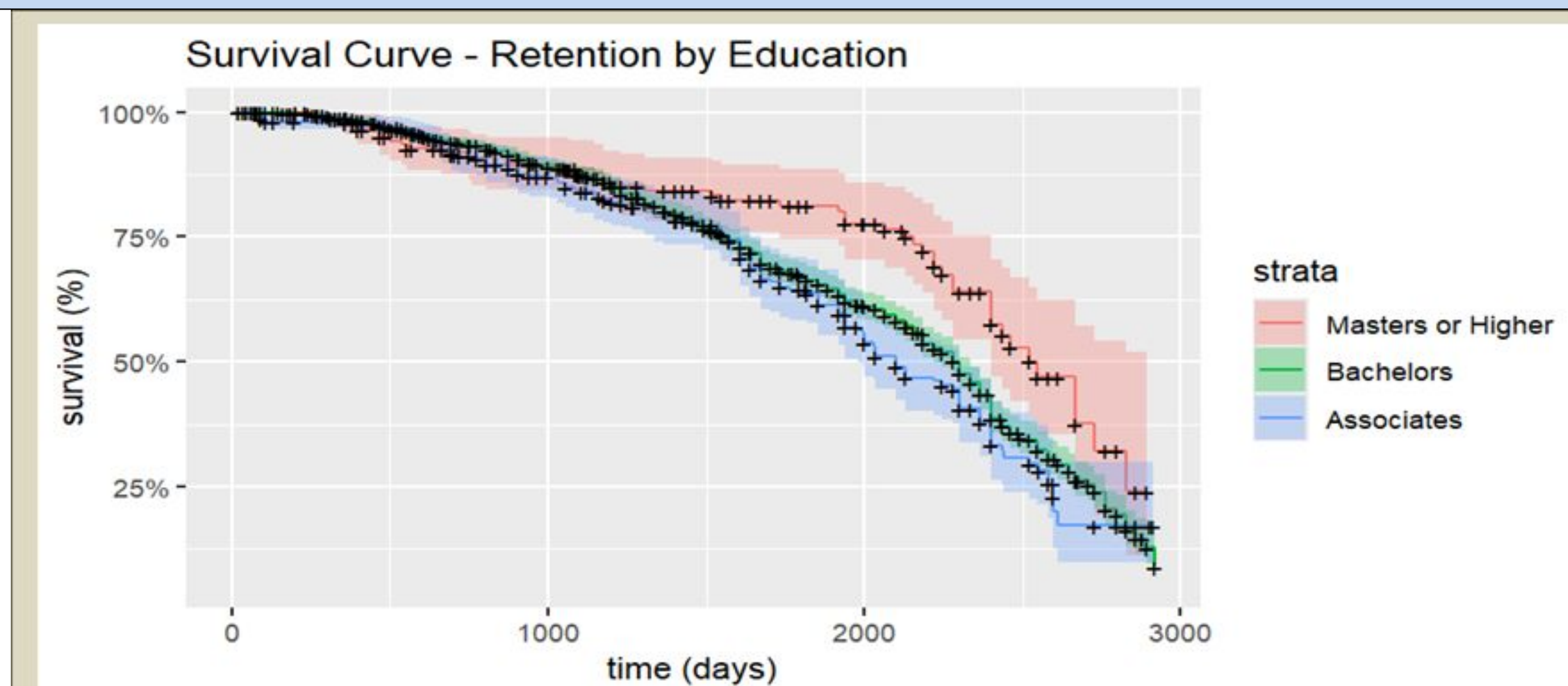


Figure 2a: Retention by Education

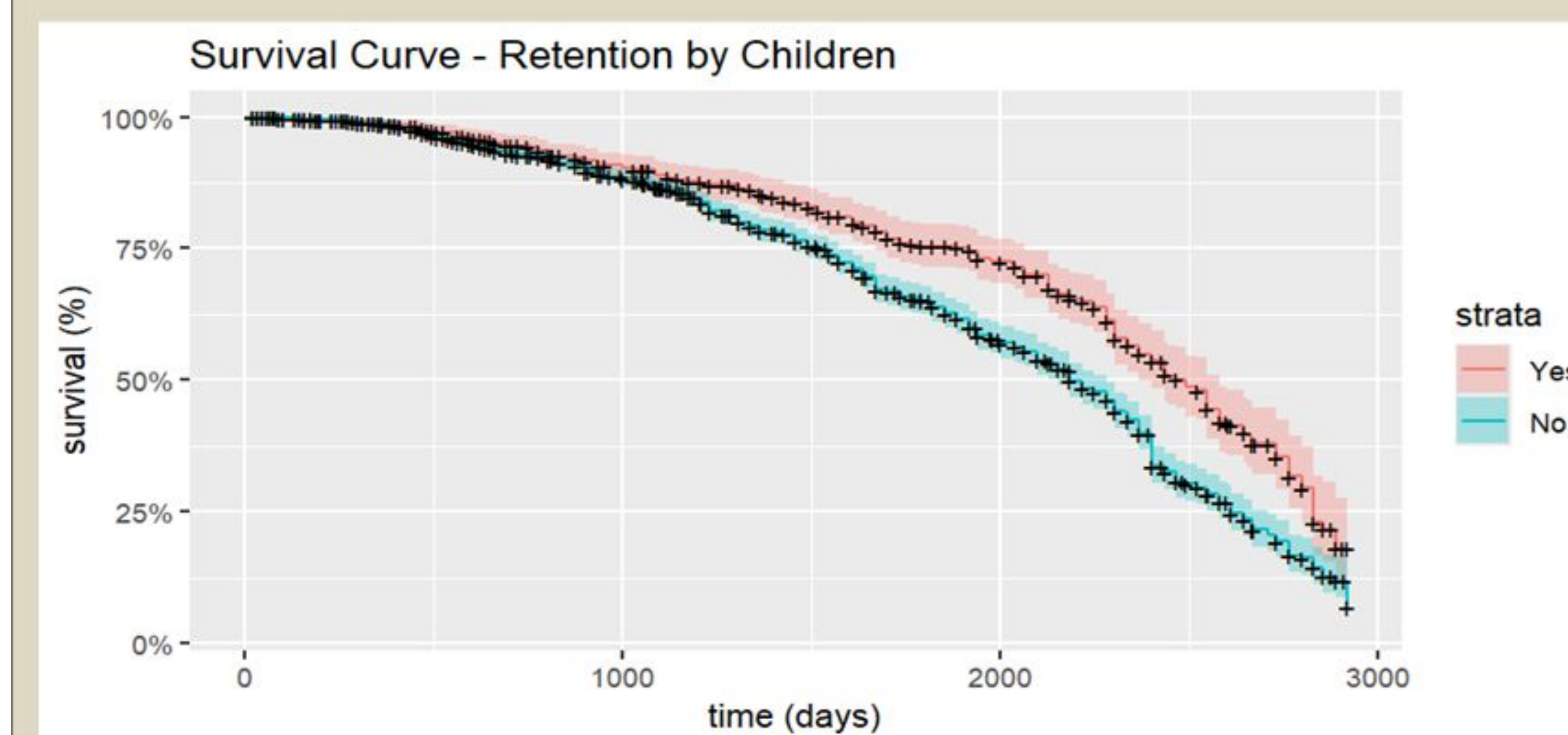


Figure 2b: Retention by Children

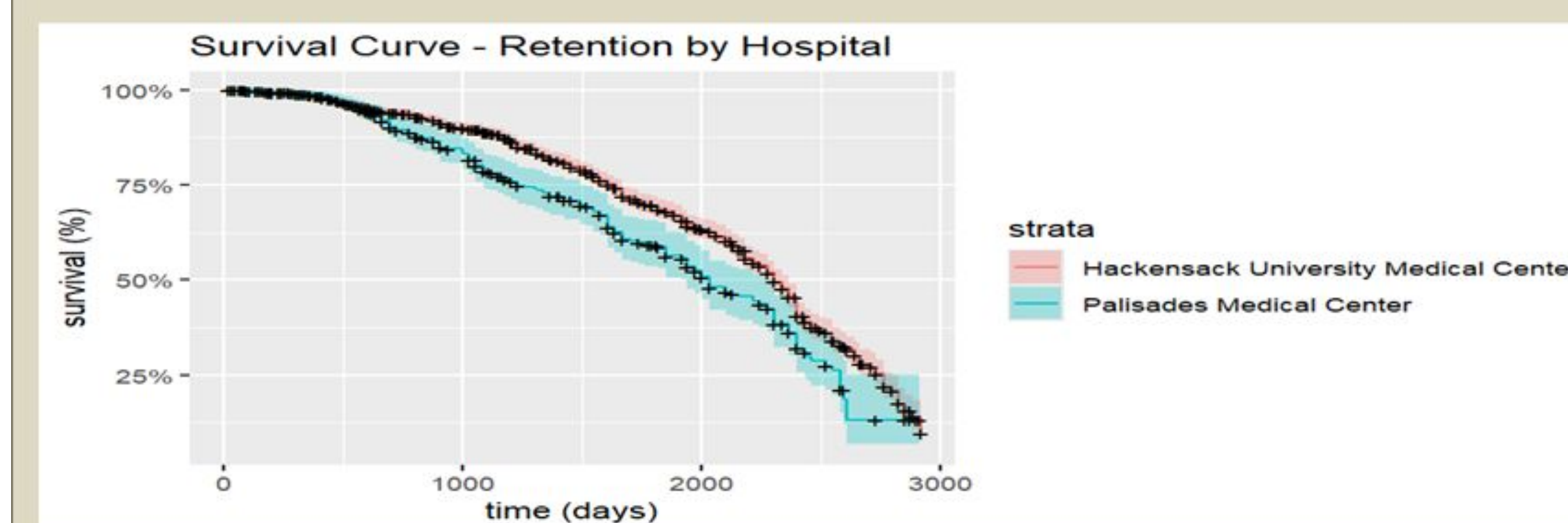


Figure 2c: Retention by Hospital

Table 2: Predictors of Retention at two Northern New Jersey Hospitals, 2018 to 2023

Characteristics	Median Time to Leaving	Unadjusted HR	Adjusted HR
	95% CI	95% CI	95% CI
	2,302 (2256-2337)		
Age			*
>= 50	2,400 (2,183-2,827)	REF	REF
20-29	2,099 (1,938-2,281)	1.67 (1.25-2.22)	1.47 (1.08-1.99)
30-39	2,337 (2,281-2,400)	1.19 (0.90-1.57)	1.07 (0.80-1.43)
40-49	2,302 (2,155-2,435)	1.29 (0.95-1.76)	1.25 (0.92-1.72)
Race/Ethnicity			*
White	2,302 (2,218-2,365)	REF	REF
Asian	2,365 (2302-2491)	0.88 (0.74-1.04)	0.91 (0.76-1.08)
Black	2,064 (1,882-2,302)	1.20 (0.99-1.46)	1.3 (1.06-1.59)
Hispanic	2,281 (2,155-2,400)	0.98 (0.82-1/17)	0.96 (0.79-1.15)
Other	2,127 (1,917-NA)	1.38 (0.78-2.45)	1.3 (0.73-2.32)
Clinical Unit			*
Ambulatory Care	2,337 (2,246-2,463)	REF	REF
ED	2,281 (2,155-2,365)	1.21 (0.95-1.52)	1.22 (0.96-1.56)
Intensive Care	2,666 (2,435-NA)	0.58 (0.42-0.80)	0.56 (0.40-0.78)
Medical Surgical	2,127 (2,036-2,218)	1.42 (1.17-1.72)	1.36 (1.12-1.66)
OB/GYN	2,491 (2,400-NA)	0.85 (0.61-1.20)	0.85 (0.61-1.20)
OR/PACU	2,281 (1,938-2,435)	1.18 (0.87-1.60)	1.28 (0.94-1.74)
Pediatric	2,400 (2,218-2,645)	0.92 (0.70-1.22)	0.97 (0.73-1.30)

- Nurses likely to leave in a shorter median time were those hired at PMC (Mdn= 2183, 95% CI: 2155-2281), with an associate's degree (Mdn =2099, 95% CI:1980-2302), or who did not have children (Mdn=2183, 95% CI: 2155-2281).
- Predictors for retention at these two northern New Jersey Hospital, included hospital site, age, race, education, clinical unit, and not having children.
- PMC Nurses were more likely to leave (HR:1.81, 95% CI: 1.41-2.32, p<0.05) compared to HUMC
- They were 20-29 vs. > 50 years, (Hazards Ratio (HR):1.43, (95% CI: 1.06-1.94), Black vs. white (HR:1.31 (95% CI: 1.07-1.60), worked on Med-Surg vs. Ambulatory Care units, (HR:1.34 (95% CI: 1.10-1.62), and did not have children vs. those who did (HR:1.37 (95% CI:1.16-1.63)), p <0.05.

Implications

- To address the underrepresentation of Black nurses, HR should evaluate new hires to ensure representative staffing.
- To improve nurse retention, hospitals should create career paths for those on medical-surgical units.

Conclusions

- Nurse retention is a challenge at these two hospitals.
- This study identified characteristics of nurses who were likely to leave the hospital.
- Developing interventions targeting these groups of nurses may be helpful in improving nurse retention at these hospitals.

Next Steps

- Evaluate characteristics that predict nurses' intent to stay and to leave in the first year and third year of employment.
- Identify nurses' perceptions of the work environment, support, and encouragement using the Revised Casey-Fink Nurse Retention Survey.
- Conduct literature review to identify and implement interventions not already in place to improve nurse retention.

References

