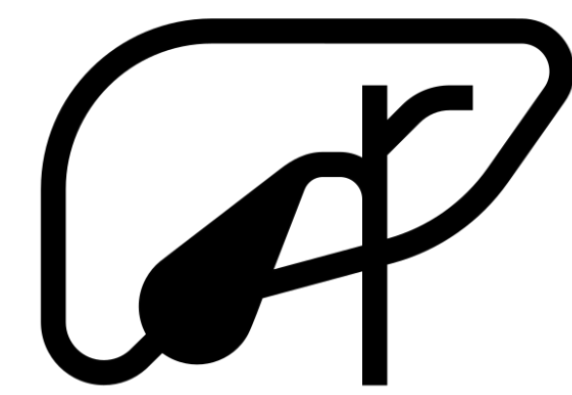


# Neoadjuvant Therapy in Extrahepatic Cholangiocarcinoma: Improved Outcomes or Just Rearranging the Deck Chairs?

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## Background



- Upfront surgery is considered standard of care for extrahepatic cholangiocarcinoma (eCCA)
- Survival is poor
- Neoadjuvant therapy (NAT) may represent a potential management strategy

## Research Objectives

- 1) Characterize treatment trends over time
- 2) Identify factors associated with the use of NAT
- 3) Evaluate the association between NAT and postoperative outcomes and overall survival (OS)

## Methods

National Cancer Database from 2004-2017.

Inclusion: any patient with eCCa undergoing surgery  
Exclusion: metastatic disease



Differences between Surgery First and NAT assessed  
Stratified analysis assessed differences between Surgery First, Neoadjuvant Chemotherapy, and Neoadjuvant Chemoradiation (CRT) groups

- Multivariable logistic regression to identify factors associated with use of NAT
- Propensity score-adjusted multivariable logistic regression and cox proportional hazard models to assess associations between NAT and outcomes and OS

## Disclosures

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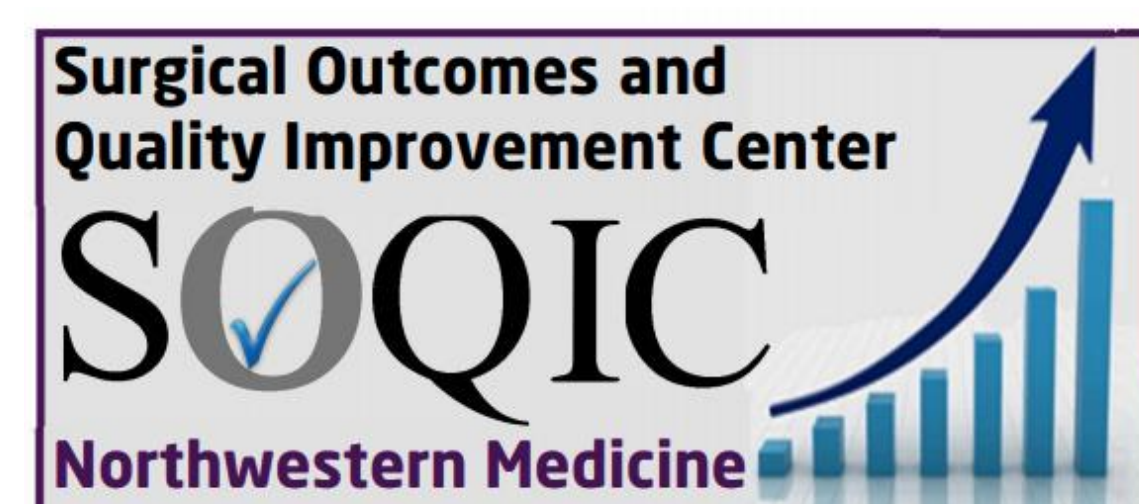


Figure 1: Treatment Trends Over Time

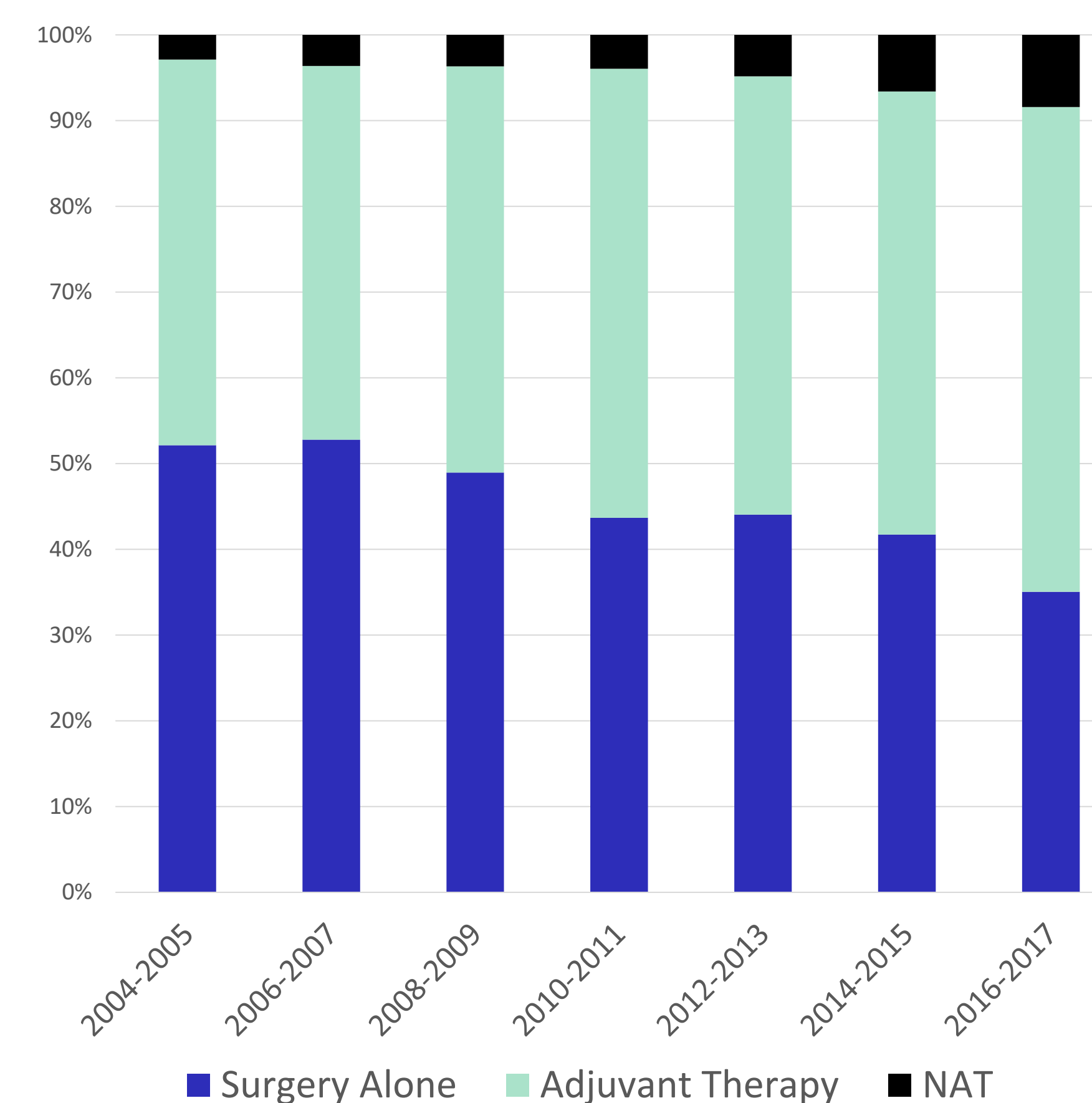


Table 1: Factors Associated With Receipt of NAT

Characteristic	OR	P value
<b>Age</b>		
>75	1.00 (REF)	
50-74	1.60	0.02
<50	4.32	<0.001
<b>Clinical Stage</b>		
0/1	1.00 (REF)	
2	1.12	0.54
3	1.68	0.01
<b>Distance</b>		
0-49 miles	1.00 (REF)	
50-99 miles	1.25	0.84
100+ miles	2.28	<0.001
<b>Surgical Case/Facility</b>		
1 <sup>st</sup> quartile	1.00 (REF)	
2 <sup>nd</sup> quartile	1.08	0.72
3 <sup>rd</sup> quartile	0.76	0.28
4 <sup>th</sup> quartile	1.42	0.12

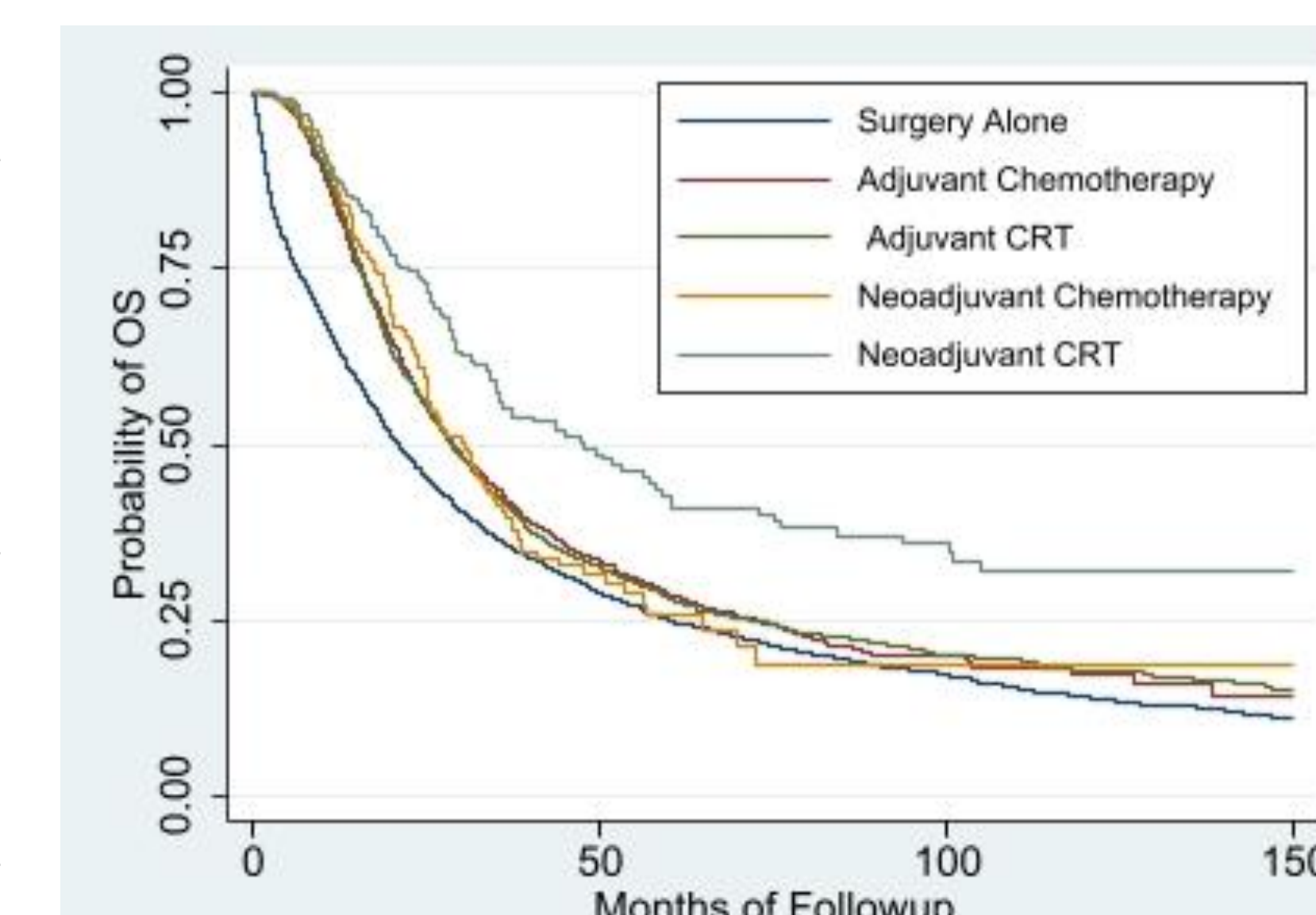
## Results

- Total study population n = 8040
- 417 (5.2%) received NAT
- Of NAT, 215 (51.6%) received chemotherapy, 202 (48.4%) CRT
- NAT increased over the study period 2.9% to 8.4% ( $p < 0.001$ , Figure 1)
- Factors associated with receipt of NAT included age <50 (vs >75) and stage 3 disease (vs 0/1, Table 1)
- Compared with Surgery First, NAT was associated with higher odds of R0 resection and lower 30-day and 90-day mortality (Table 2)
- Neoadjuvant Chemotherapy alone not associated with differences in any outcomes
- Neoadjuvant CRT associated with improved odds of R0 resection and lower 90-day mortality
- Neoadjuvant CRT associated with the best overall survival compared to Surgery Alone and Adjuvant Therapy (Figure 2)

Table 2: Association Between NAT and Outcomes

	OR	p-value
<b>R0 RESECTION</b>		
NAT	1.49	0.01
Chemotherapy	0.95	0.75
CRT	3.52	<0.001
<b>30-DAY READMISSION</b>		
NAT	0.98	0.90
Chemotherapy	0.84	0.49
CRT	1.15	0.58
<b>30-DAY MORTALITY</b>		
NAT	0.51	0.04
Chemotherapy	0.53	0.15
CRT	0.49	0.16
<b>90-DAY MORTALITY</b>		
NAT	0.58	0.04
Chemotherapy	0.83	0.55
CRT	0.33	0.02

Figure 2: Association between NAT and Survival



\*Outcomes derived from separate models.  
Surgery First serves as reference category for each model - NAT compared to Surgery First followed by comparison of Surgery First, Neoadjuvant Chemo, and Neoadjuvant CRT groups  
\*Models adjusted for age, tumor stage/grade, and hospital case volume

## Limitations

- Study design only demonstrates association
- Does not consider patients who may have received NAT but did not make it to surgery

## Conclusions

Use of NAT for eCCA remains uncommon in the United States  
Compared to Surgery First, NAT, particularly neoadjuvant CRT, is associated with improved postoperative outcomes and OS  
Data suggests expanding the use of neoadjuvant CRT for eCCA