

# Comparative Efficacy of First-Line Chemotherapies for Metastatic Pancreatic Cancer (mPC) Using Bayesian Network Meta-Analysis (NMA) of Survival Curves.

Roselyn S. Amamoo<sup>1</sup>, Rosemond S. Amamoo<sup>1</sup>, Brian Erstad<sup>2</sup>, Celina I. Valencia<sup>3</sup>, Ivo Abraham<sup>1</sup>

<sup>1</sup> Health and Pharmaceutical Outcomes, Department of Pharmacy Practice & Science, R. Kem Coit College of Pharmacy, University of Arizona  
<sup>2</sup> Department of Pharmacy Practice & Science, R. Kem Coit College of Pharmacy, University of Arizona  
<sup>3</sup> Department of Family and Community Medicine, College of Medicine, University of Arizona



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## Introduction

- The NAPOLI 3 trial added NALIRIFOX as a new first-line treatment option for mPC to the existing options of FOLFIRINOX, Nab-paclitaxel plus gemcitabine (NABP+GEM) and Gemcitabine (GEM)<sup>1</sup>.
- In contrast to conventional NMA using hazard ratios (HR), we applied an innovative method using reconstructed pseudo individual patient-level data (IPD) from published survival curves without the constraint of the proportional hazards assumption to conduct a Bayesian indirect treatment comparison of these regimens.

## Methods

- Eligible phase III randomized clinical trials directly comparing either NALIRIFOX, FOLFIRINOX, NABP+GEM or GEM were identified from PubMed and Embase.
- The pseudo-IPD were reconstructed using the Liu et al method<sup>2</sup>.
- A Bayesian NMA was conducted using overall survival (OS) and progression free-survival (PFS) curves to estimate the HRs over a time frame of 1 month to 36 months, with the assumption that the true survival functions follow parametric distributions such as Weibull, Gompertz, Exponential, Log-logistic, and Log-normal.
- The best-fitting model was selected based on the lowest deviance information criterion (DIC).
- Fixed effects log-logistic and log-normal models were retained for OS and PFS curves, respectively, with NALIRIFOX as the comparator.

## Results

Figure 1. Reconstructed Kaplan-Meier curves for OS (panel A) and PFS (panel B) curves

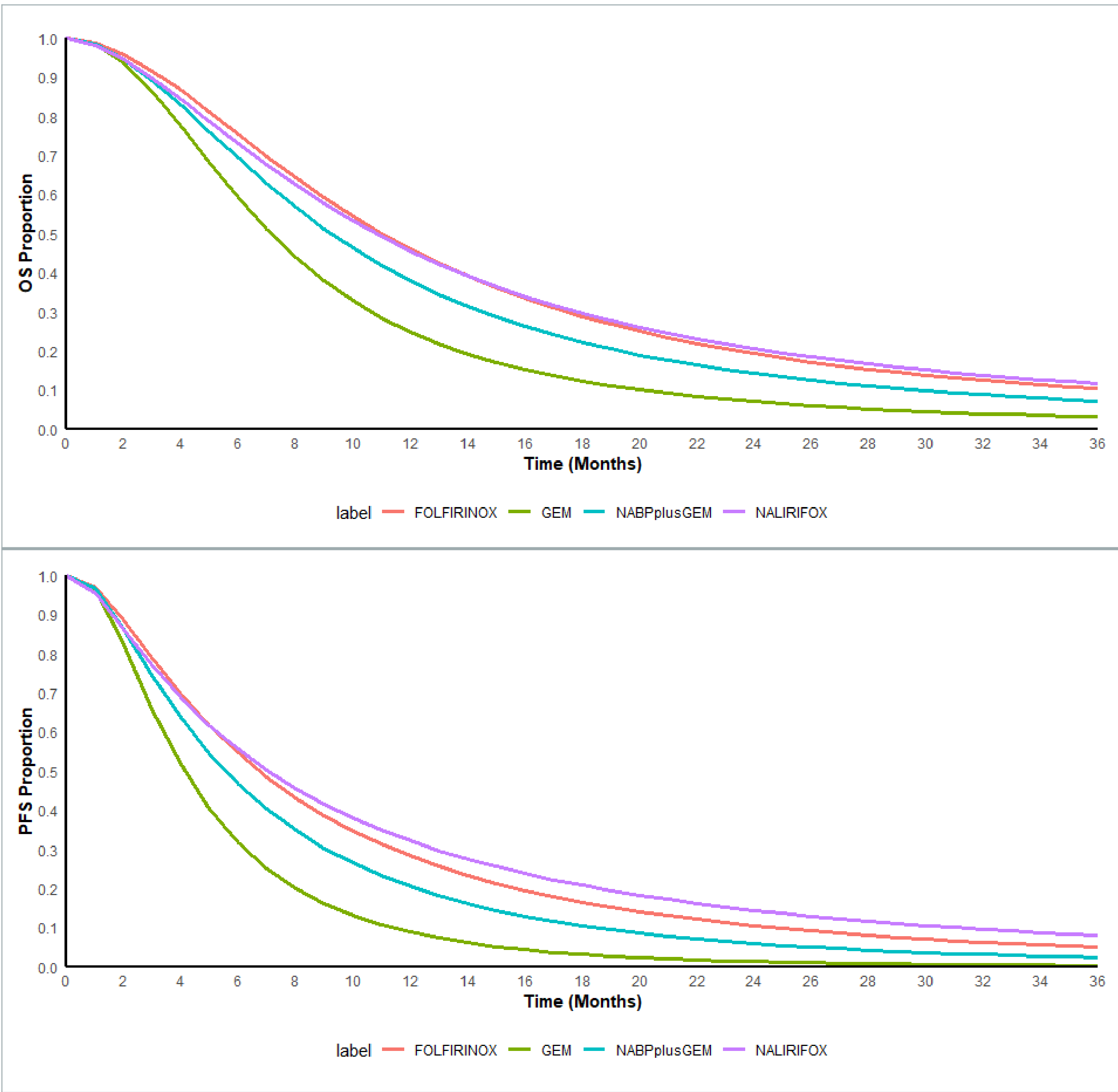


Table 1. Hazard ratios from NMA of OS curves

Treatment	1 month	12 months	24 months	36 months
FOLFIRINOX	1.06 (1.05-1.08)	1.11 (1.09-1.13)	1.11 (1.08-1.12)	1.10 (1.08-1.12)
NABP+GEM	1.17 (1.10-1.24)	1.15 (1.06-1.27)	1.14 (1.05-1.25)	1.13 (1.05-1.24)
GEM	1.50 (1.24-1.82)	1.37 (1.08-1.79)	1.33 (1.06-1.71)	1.31 (1.05-1.67)

Table 2. Hazard ratios from NMA of PFS curves

Treatment	1 month	12 months	24 months	36 months
FOLFIRINOX	1.12 (1.09-1.14)	1.26 (1.23-1.27)	1.28 (1.25-1.31)	1.28 (1.25-1.32)
NABP+GEM	1.36 (1.29-1.41)	1.51 (1.39-1.63)	1.52 (1.40-1.65)	1.52 (1.39-1.66)
GEM	2.00 (1.63-2.42)	2.24 (1.65-3.03)	2.25 (1.64-3.10)	2.25 (1.63-3.12)

## Conclusions

This Bayesian NMA of survival curves for mPC indicates FOLFIRINOX and NALIRIFOX have comparable survival benefits, both associated with peripheral neuropathy and hematological toxicity, with NALIRIFOX being comparably more tolerable. NABP+GEM is a suitable option for patients with lower performance status. All three regimens prevailed in efficacy over GEM.

## Limitations

- Adverse events for evaluating the safety profile of treatments were not assessed in this analysis.

## References

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2. Liu N, Zhou Y, Lee JJ. IPDfromKM: reconstruct individual patient data from published Kaplan-Meier survival curves. BMC Med Res Methodol. 2021;21(1):1-22. doi:10.1186/s12874-021-01308-8

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Contact: Roselyn S. Amamoo: roselynamamoo@arizona.edu