Cancer Care Ontario

# Real World Outcomes of FOLFIRINOX versus gemcitabine + nab-paclitaxel in advanced pancreatic cancer: A population-based propensity score weighted analysis


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## Background

- FOLFIRINOX (FFX) has been universally publicly funded in Ontario, Canada for metastatic pancreatic cancer and locally advanced unresectable pancreatic cancer since Nov. 2011 and Apr. 2015, respectively.
- Gemcitabine + nab-paclitaxel (GnP) has been publicly funded for metastatic pancreatic cancer and locally advanced unresectable pancreatic cancer (uLAPC) since Apr. 2015.

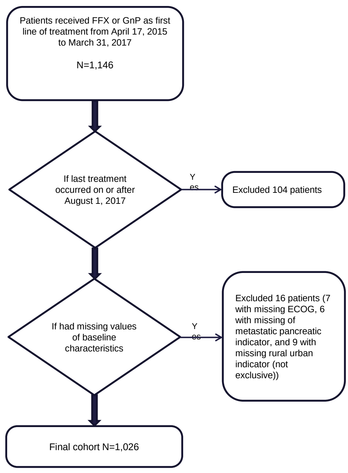
## Objectives

- Examine the effectiveness and safety of publicly funded FFX versus GnP for patients with advanced pancreatic cancer.

## Methods

- Patients with advanced pancreatic cancer who received first-line FFX or GnP from Apr. 2015 to Mar. 2017 were identified in CCO's New Drug Funding Program database.
- Data were linked with the Ontario Cancer Registry (OCR), Registered Persons Database (RPDB), Cancer Activity Level Reporting (ALR) database and others to ascertain demographics, comorbidities, and outcomes.
- Propensity score (PS) was estimated from a logistic regression model by adjusting for age, gender, previous adjuvant gemcitabine, previous radiation treatment, previous pancreatic resection, Charlson score, ECOG performance status, metastatic pancreatic cancer, rural urban status, and income quintile.
- Treatment groups were balanced using inverse probability of treatment weighting (IPTW) method; weight defined as the inverse PS of the treatment patients actually received.
- Standardized differences were calculated to check the balance of the cohort after PS.
- Kaplan-Meier method and weighted Cox regression model were adopted to estimate overall survival.
- Weighted logistic regression was adopted to calculate adjusted odds ratio (OR) for hospitalizations and emergency department visits.

## Flowchart of Cohort Creation



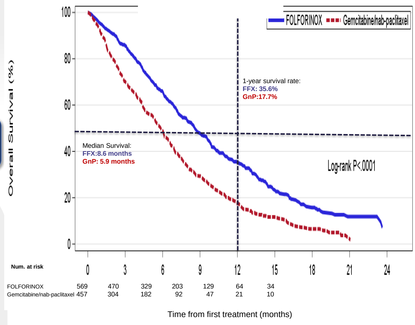

## Baseline Characteristics

| Characteristics | FFX | GnP | Total |
|---|---|---|---|
| Patient Number (row %) | 569 (55.5%) | 457 (44.5%) | 1,026 (100%) |
| Age at first treatment (mean±sd) * | 61.77 ± 9.26 | 69.29 ± 8.59 | 65.12 ± 9.72 |
| Female (column %) | 258 (45.34%) | 181 (39.61%) | 439 (42.79%) |
| Previous adjuvant gemcitabine (column %) * | 66 (11.60%) | 28 (6.13%) | 94 (9.16%) |
| Previous radiation (column %) * | 33 (5.80%) | 51 (11.16%) | 84 (8.19%) |
| Previous pancreatic resection (column %) | 89 (15.64%) | 58 (12.69%) | 147 (14.33%) |
| Metastatic (column %) * | 375 (65.91%) | 352 (77.02%) | 727 (70.86%) |
| Charlson score 1+ (column %) | 164 (28.82%) | 148 (32.39%) | 312 (30.41%) |
| ECOG 1+ (column %) * | 353 (62.04%) | 380 (83.15%) | 733 (71.44%) |
| Urban (column %) | 490 (86.12%) | 403 (88.18%) | 893 (87.04%) |
| Income quintile (column %) | | | |
| 1 (lowest) | 67 (11.78%) | 80 (17.51%) | 147 (14.33%) |
| 2 | 93 (16.34%) | 77 (16.85%) | 170 (16.57%) |
| 3 | 102 (17.93%) | 91 (19.91%) | 193 (18.81%) |
| 4 | 120 (21.09%) | 85 (18.60%) | 205 (19.98%) |
| 5 (highest) | 123 (21.62%) | 82 (17.94%) | 205 (19.98%) |
| unknown | 64 (11.25%) | 42 (9.19%) | 106 (10.33%) |

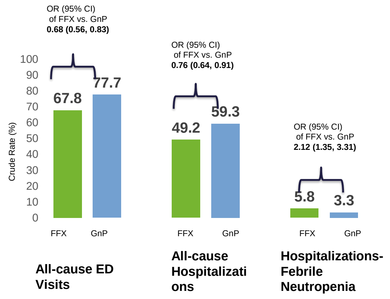
* Statistically significant difference between groups

## Results

### Overall Survival by Regimen



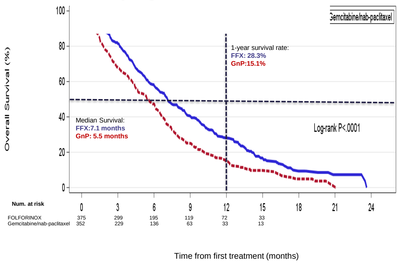

### Crude Rate and IPTW Adjusted OR of Safety Outcomes



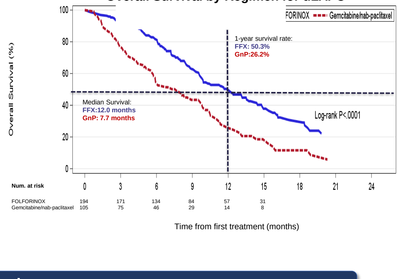

### Adjusted Hazard Ratio of Overall Mortality

| Model | HR (95% CI) of FFX vs. GnP | P-value |
|---|---|---|
| **Overall Cohort (n=1026)** | | |
| IPTW adjusted Cox proportional hazard model | 0.76 (0.69 ,0.84) | <.0001 |
| Multivariable adjusted Cox proportional hazard model | 0.73 (0.62 ,0.86) | 0.0002 |
| **Metastatic Pancreatic Cancer (n=727)** | | |
| IPTW adjusted Cox proportional hazard model | 0.83 (0.73 ,0.93 | 0.002 |
| Multivariable adjusted Cox proportional hazard model | 0.78 (0.64 ,0.94) | 0.01 |
| **Locally Advanced Unresectable Pancreatic Cancer (n=299)** | | |
| IPTW adjusted Cox proportional hazard model | 0.55 (0.44 ,0.68) | <.0001 |
| Multivariable adjusted Cox proportional hazard model | 0.59 (0.42 ,0.84) | 0.003 |

### Overall Survival by Regimen for Metastatic Pancreatic Patients




### Overall Survival by Regimen for uLAPC




## Conclusion

- In the real world, overall survival appeared better among patients who received FFX compared with GnP; the adjusted risk of mortality decreased by 24% for patients who received FFX compared with GnP for all advanced pancreatic cancer patients.
- FFX appeared to lead to less frequent all-cause ED visits and all-cause hospitalization, but more hospitalizations for febrile neutropenia.

ARCC Canadian Centre for Applied Research in Cancer Control · Sunnybrook Odette Cancer Centre · London Health Sciences Centre London Regional Cancer Program · OICR Ontario Institute for Cancer Research · Cancer Care South East · Hamilton Health Sciences · St. Michael's Inspired Care. Inspiring Science. · Mount Sinai Hospital · Ontario Cancer Care Ontario