

Anticipe

U1086 INSERM  
Université Caen Normandie  
Unité de Recherche Interdisciplinaire pour  
la prévention et le traitement des cancers

 Inserm

Institut national  
de la santé et de la recherche médicale

# IMPACT OF SOCIOECONOMIC STATUS ON SURVIVAL IN PATIENTS WITH OVARIAN CANCER

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# Introduction

- Incidence age-standardized (2018)
  - World : 6.6 / 100,000<sup>1</sup>
  - Europe : 9.5 / 100,000<sup>1</sup>
  - France : 7.6 / 100,000 (2012)<sup>2</sup>
  
- Age-standardized net survival
  - Europe : 70% at 1 year, 38% at 5 years (2000-2007)<sup>3</sup>
  - France : 77% at 1 year, 54% at 3 years, 43% at 5 years (2005-2010)<sup>4</sup>

<sup>1</sup>BRAY F. et al. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. **CA Cancer J Clin** 2018;68:394–424.

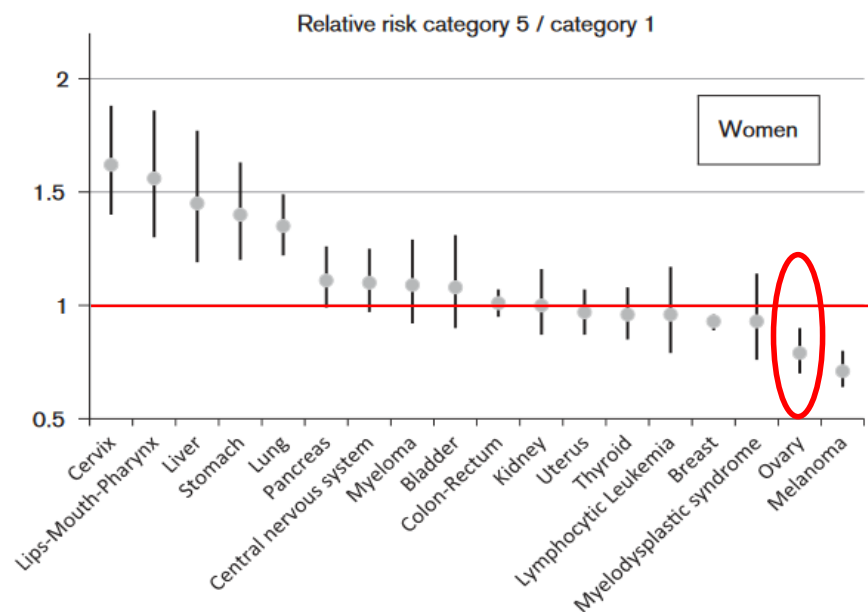
<sup>2</sup>BINDER-FOUCARD, F. et al. Cancer incidence and mortality in France over the 1980-2012 period: solid tumors. **Rev Epidemiol Sante Publique**, 2014

<sup>3</sup>SANT, M. et al. Survival of women with cancers of breast and genital organs in Europe 1999-2007: Results of the EUROCARE-5 study. **Eur J Cancer**, 2015

<sup>4</sup>COWPPLI-BONY, A. et al. Survival of solid cancer patients in France, 1989-2013: a population-based study. **Eur J Cancer Prev**, 2017

# Introduction

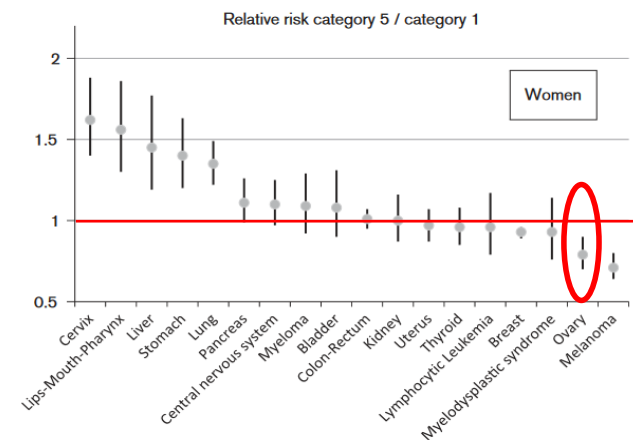
- No significant inequalities in cancer mortality in France
  - Menvielle et al, 2005
- Women living in deprived areas had a higher risk of death
  - Bailey et al, 2015
- Higher incidence in the least deprived
  - Bryère et al, 2018



Bryère et al, 2018

# Introduction

- No significant inequalities in cancer mortality in France
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*Bryère et al, 2018*

- In the USA and Denmark, significant differences in survival after ovarian cancer according to socioeconomic status
  - Dalton et al, 2008
  - Jensen et al, 2008
  - Kim et al, 2010
  - Brewer et al, 2015
  - Bristow et al, 2013
  - Peterson et al, 2015
- No differences in Sweden and the UK
  - Weiderpass et al, 2014
  - Abdel-Rahman, 2014

# Introduction

- Primary objective
  - Assess whether socioeconomic deprivation with aggregated indicators has an impact on survival after a diagnosis of ovarian cancer
- Secondary objective
  - Investigate to what extent differences in survival may be explained by therapeutic care received

# Methods

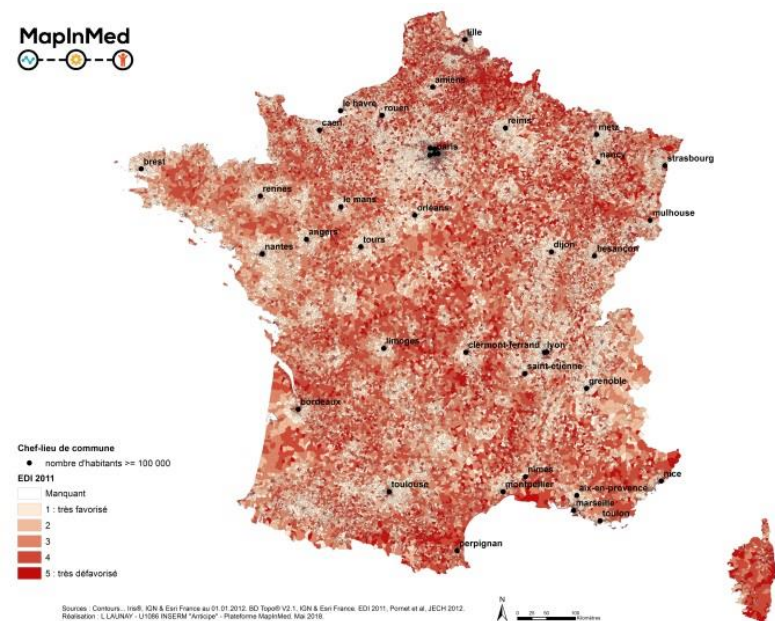
- Study population
  - Women, over 18 years old
  - Ovarian cancer (C56.\*, C57.0, C48) between 2011 and 2015
  - Medical care at cancer care center in Caen
- Variables
  - Data collected in medical records at CFB
  - Available :

Age at diagnosis	FIGO stage
Date of diagnosis	Personal history of cancer
Topography	Performance status (WHO)
Histopathology	Chemotherapy & surgical resection*
Grade	Adress at diagnosis

\* Curative intent : hysterectomy with adnexectomy or ovariectomy or salpingectomy

# Methods

- Measure of the social environment in the study
  - Measured by EDI (European Deprivation Index)
  - Categorized in quintiles
  - Quintiles 1-2 : « Least deprived »
  - Quintiles 3-4-5 : « Most deprived »



# Methods

- Statistical analyses (StataSE14 –  $p < 0,05$ )
  - Tests Chi-square and Fisher exact
  - Kaplan-Meier estimators and curves
  - Multiple imputations by chained equations
  - Univariate and multivariate Cox model (Endpoint for follow-up : 30 November 2017)
  - Univariate and multivariate logistic regression
  - Reference category for all analyses → Quintiles 1-2 : « Least deprived »



# Results

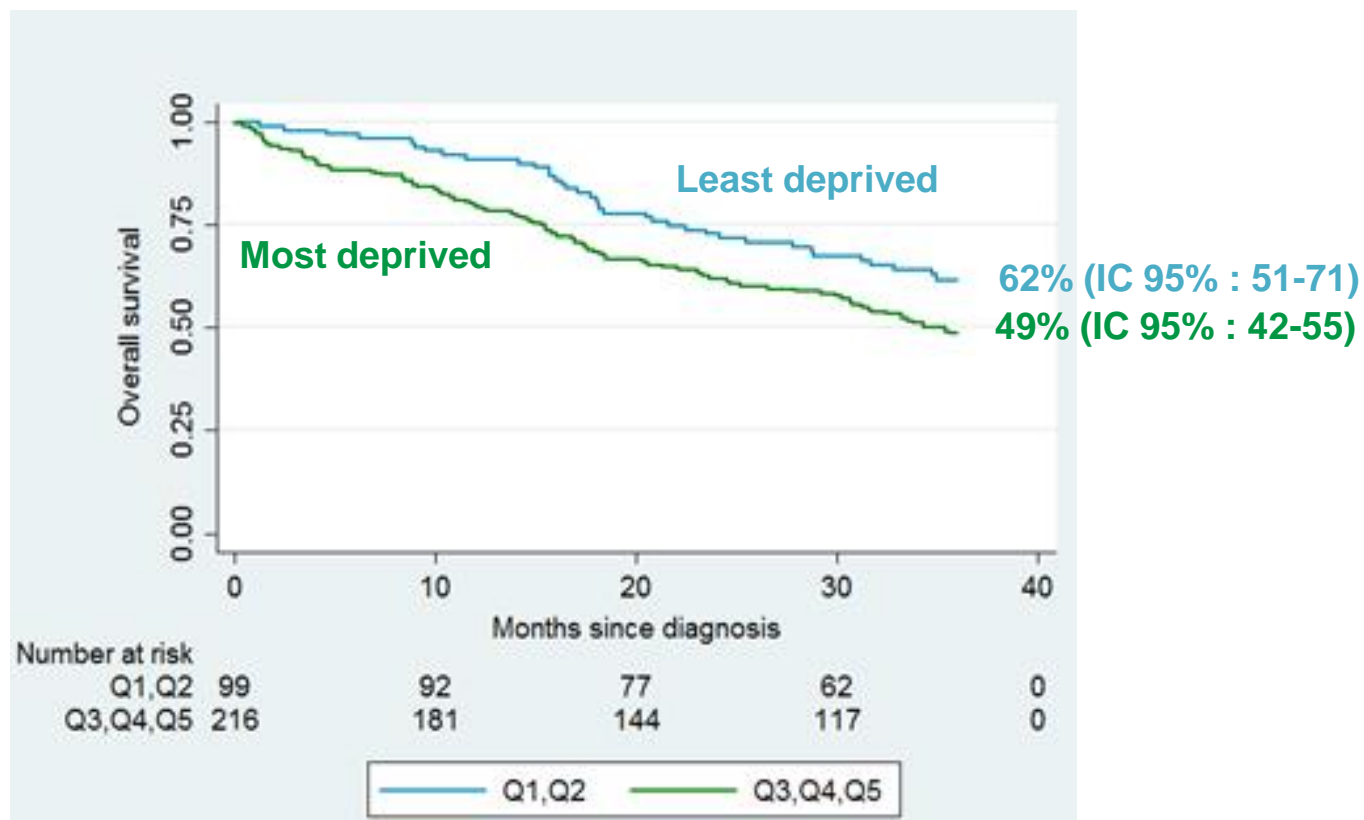
## Characteristics of patients

N=318			
	Least deprived	Most deprived	p-value
Age (years)			0.337
<45	8.3	5.4	
45-54	10.0	11.0	
55-64	33.4	24.6	
65-74	25.2	36.1	
75-84	21.1	19.7	
85+	2.0	3.2	
Disease status			0.434
Alive	44.4	39.7	
Dead	55.6	60.3	
Surgical resection			<b>0.011</b>
Yes	87.0	73.9	
No	13.1	26.1	

# Results

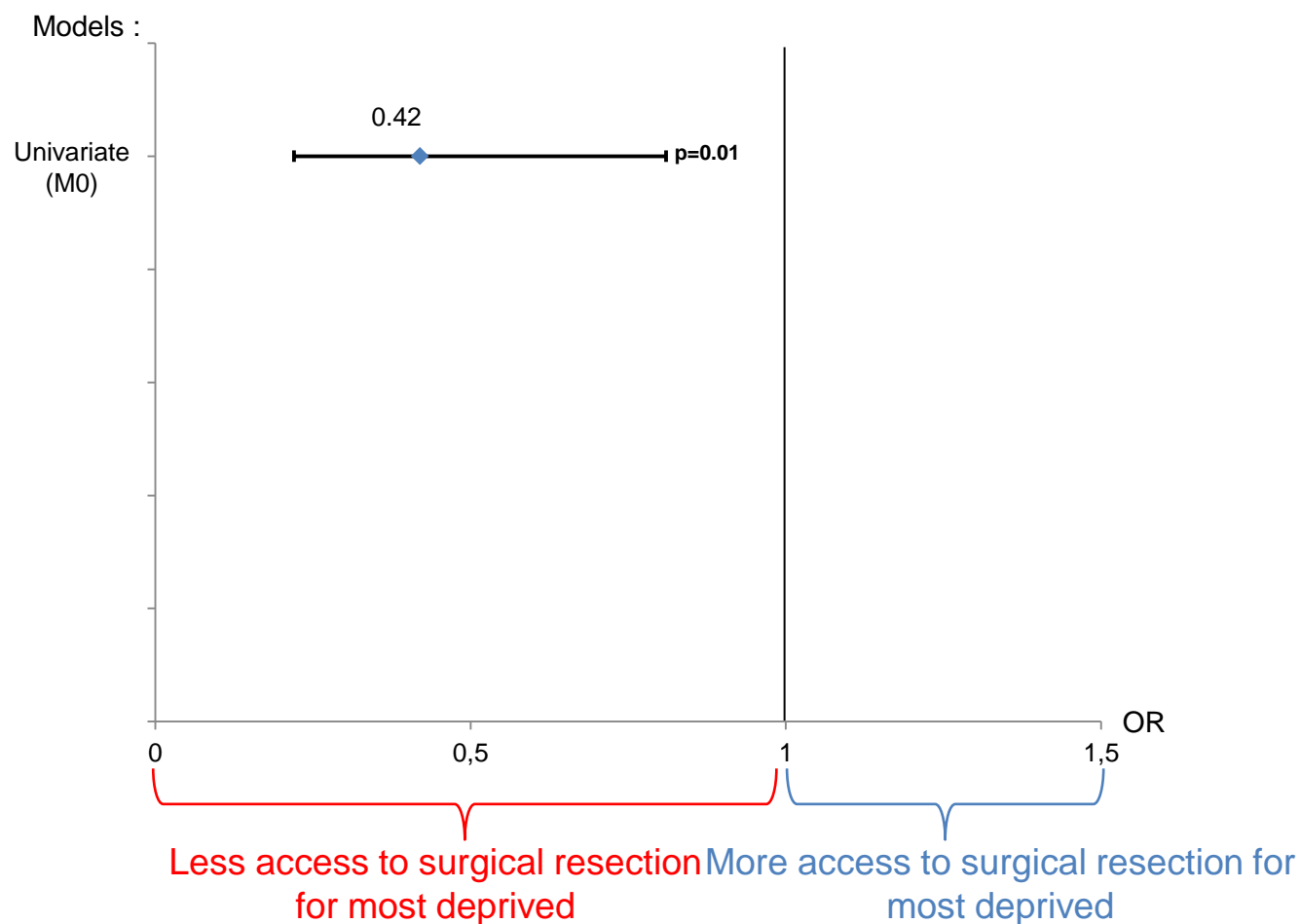
**Overall survival at 3 years : 52% (IC à 95% : 47-58)**

Kaplan-Meier curve depicting overall survival using European Deprivation Index (EDI)  
*Log rank test;  $p < 0,001$*



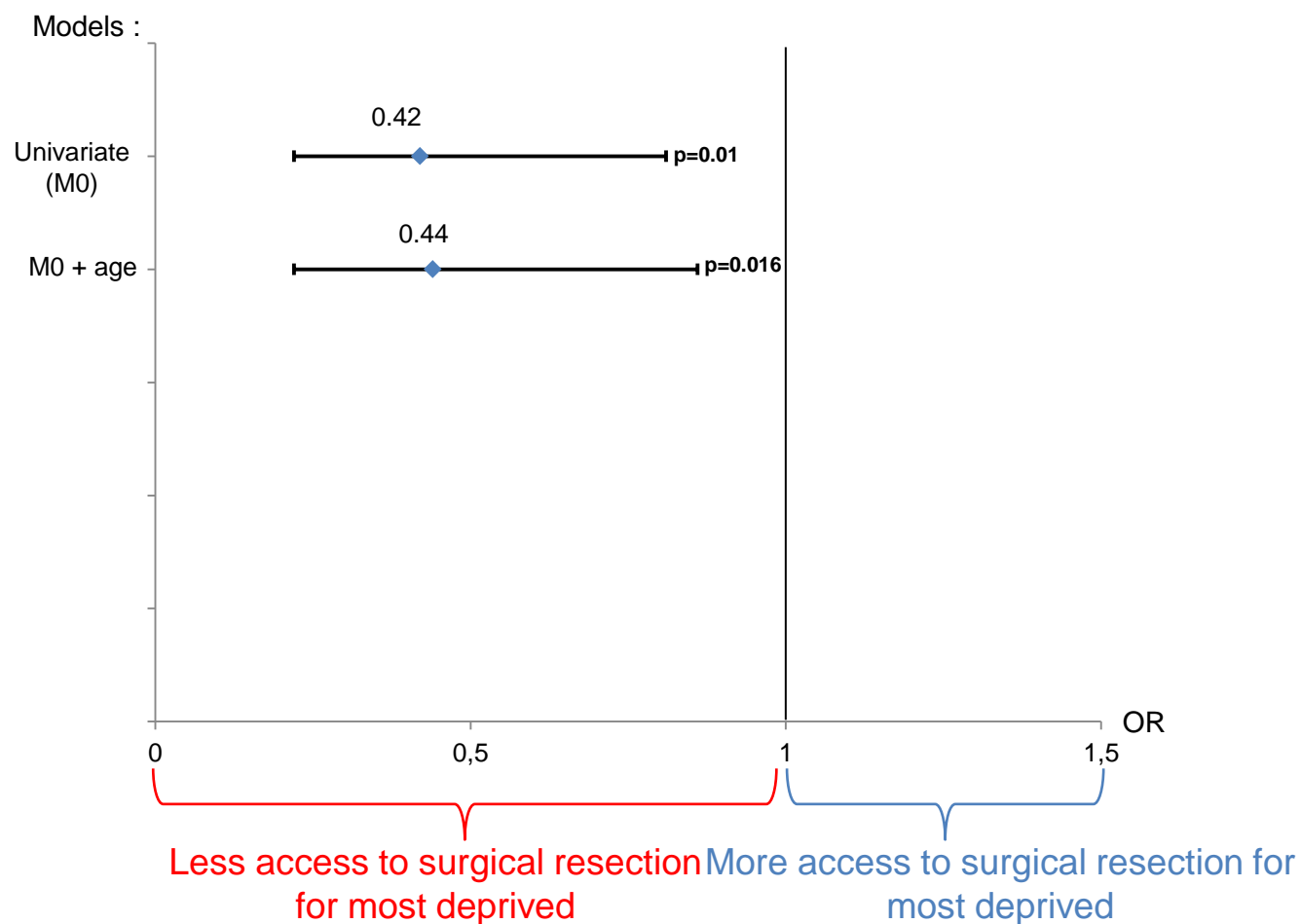
# Results – surgical resection

Influence of socioeconomic status and surgical resection (Logistic regression)



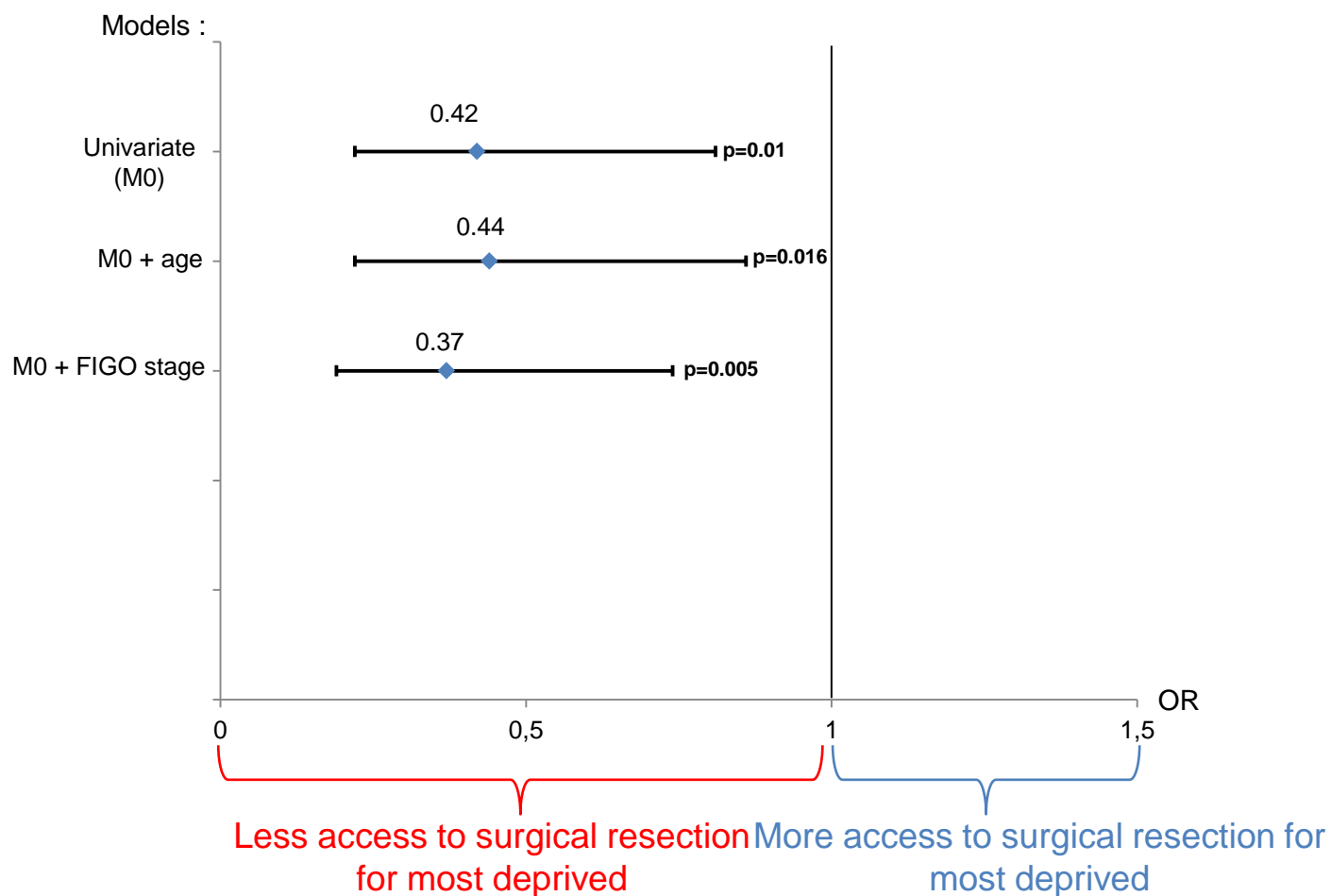
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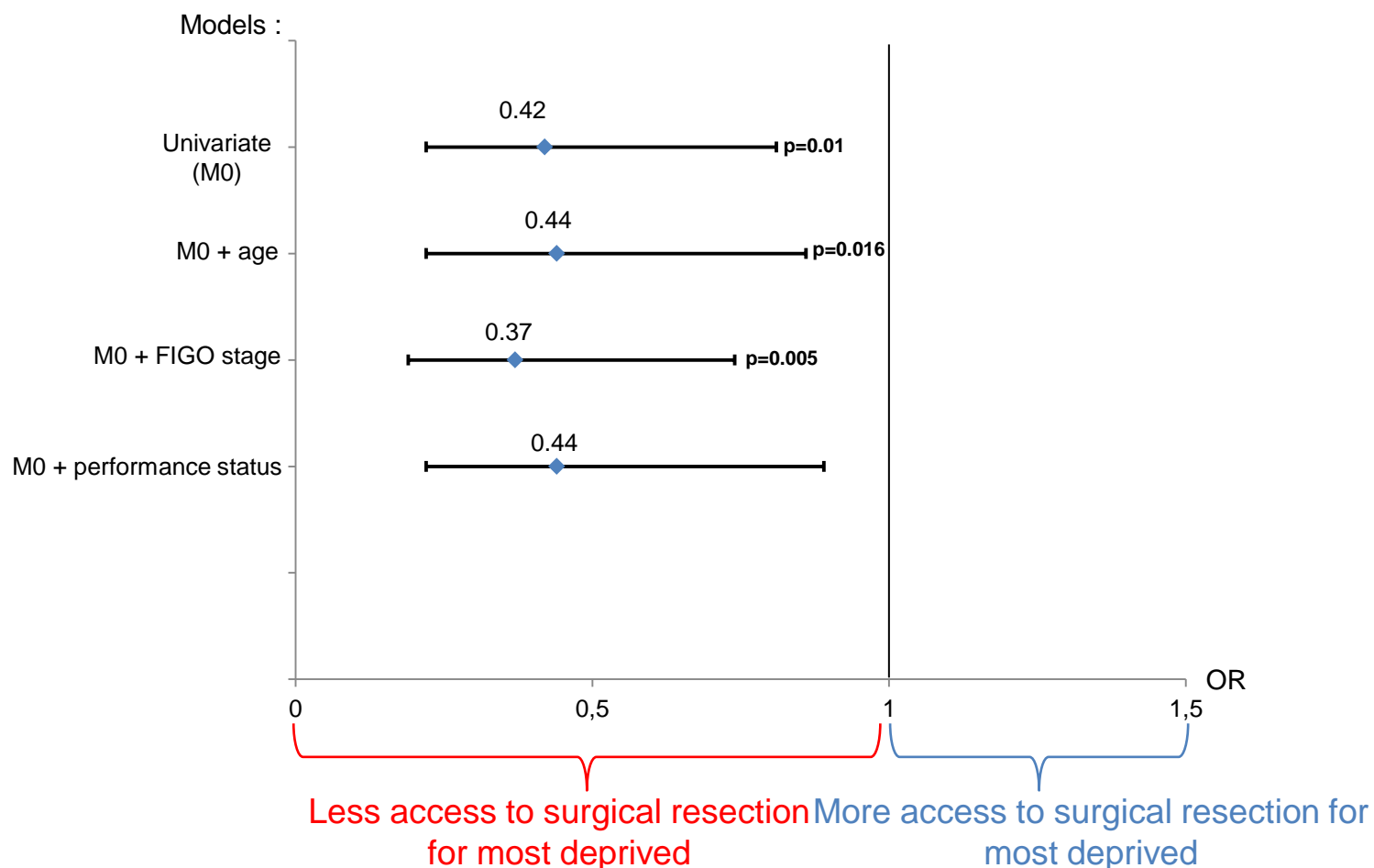
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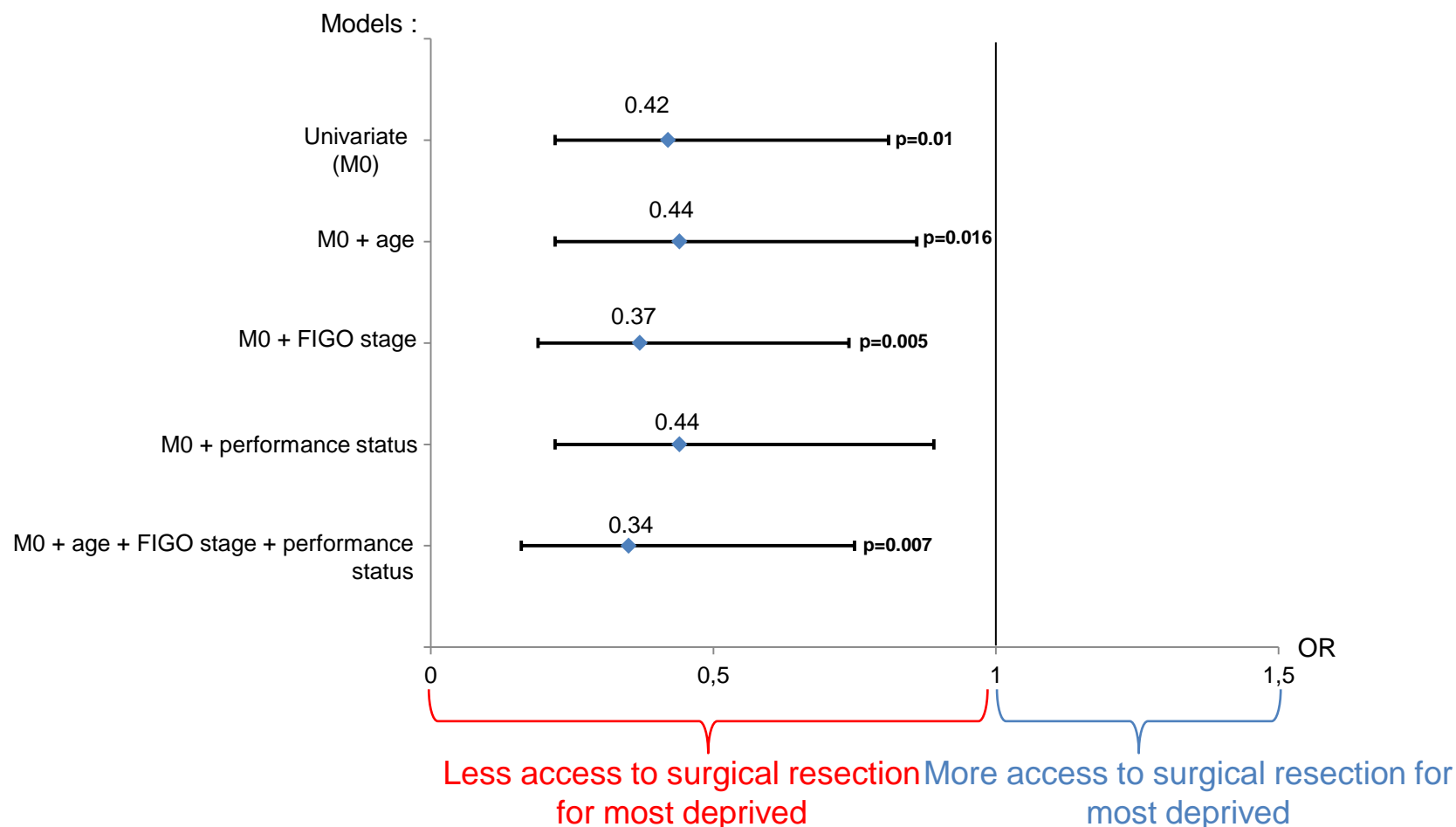
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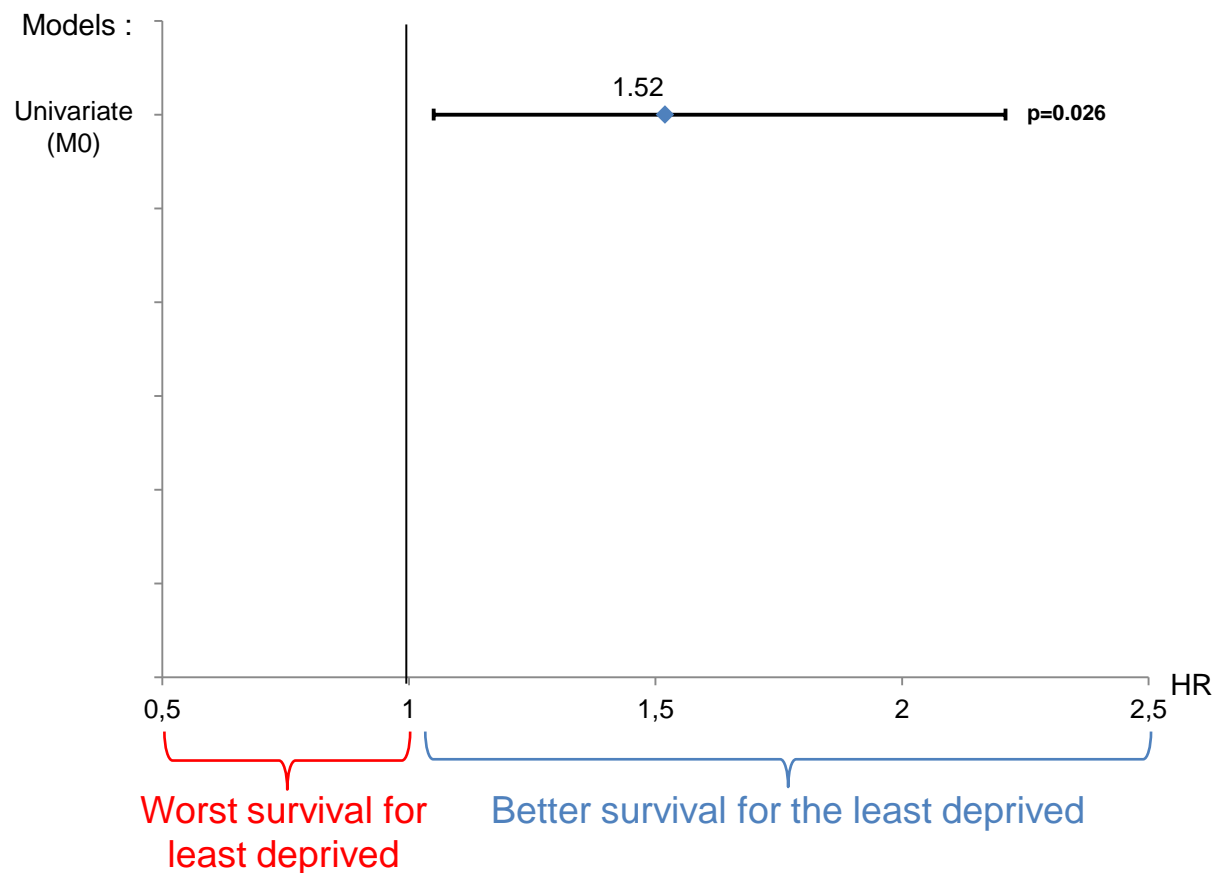
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# Results - survival

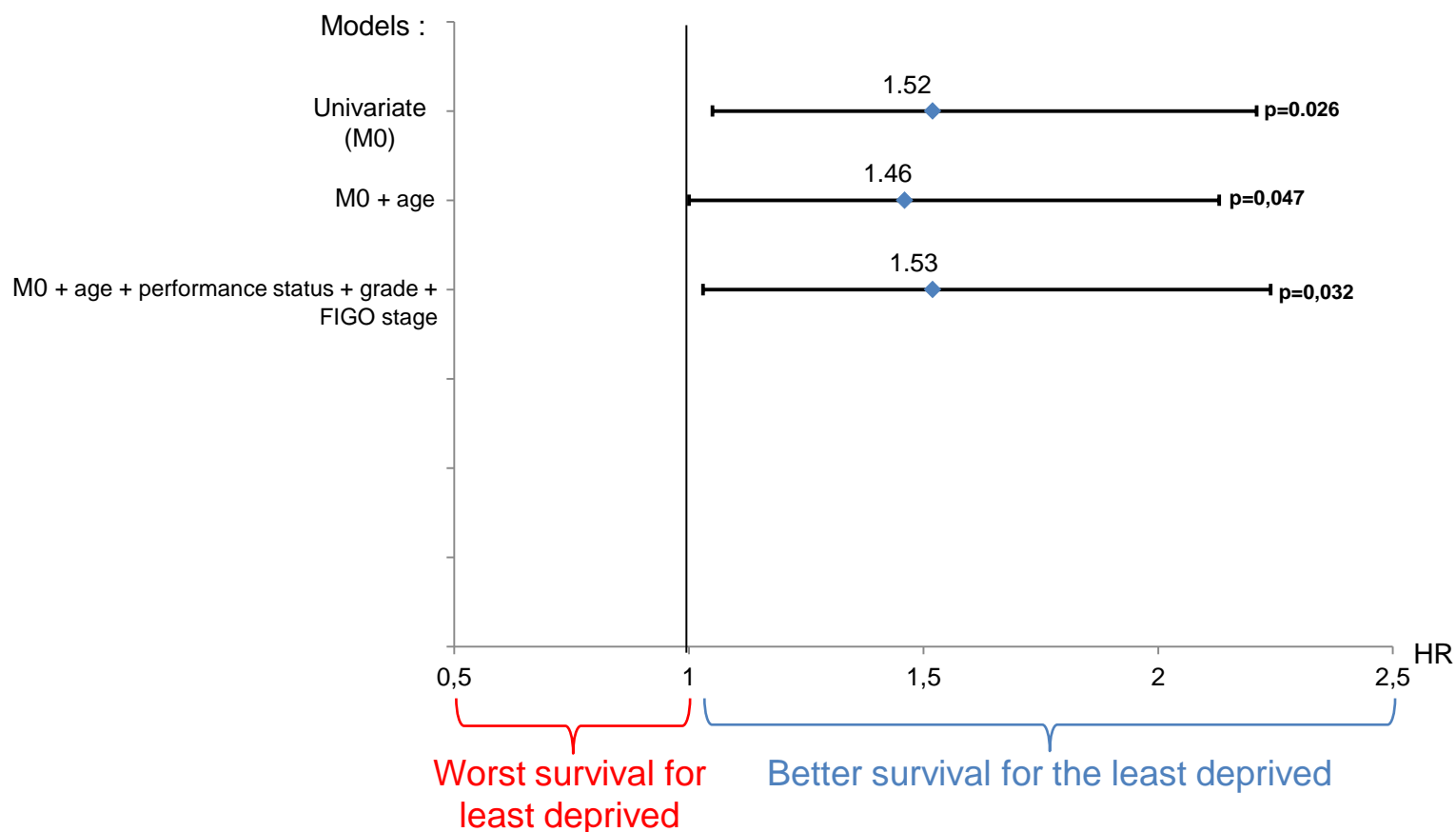
Association between socioeconomic status and survival (Cox regression)





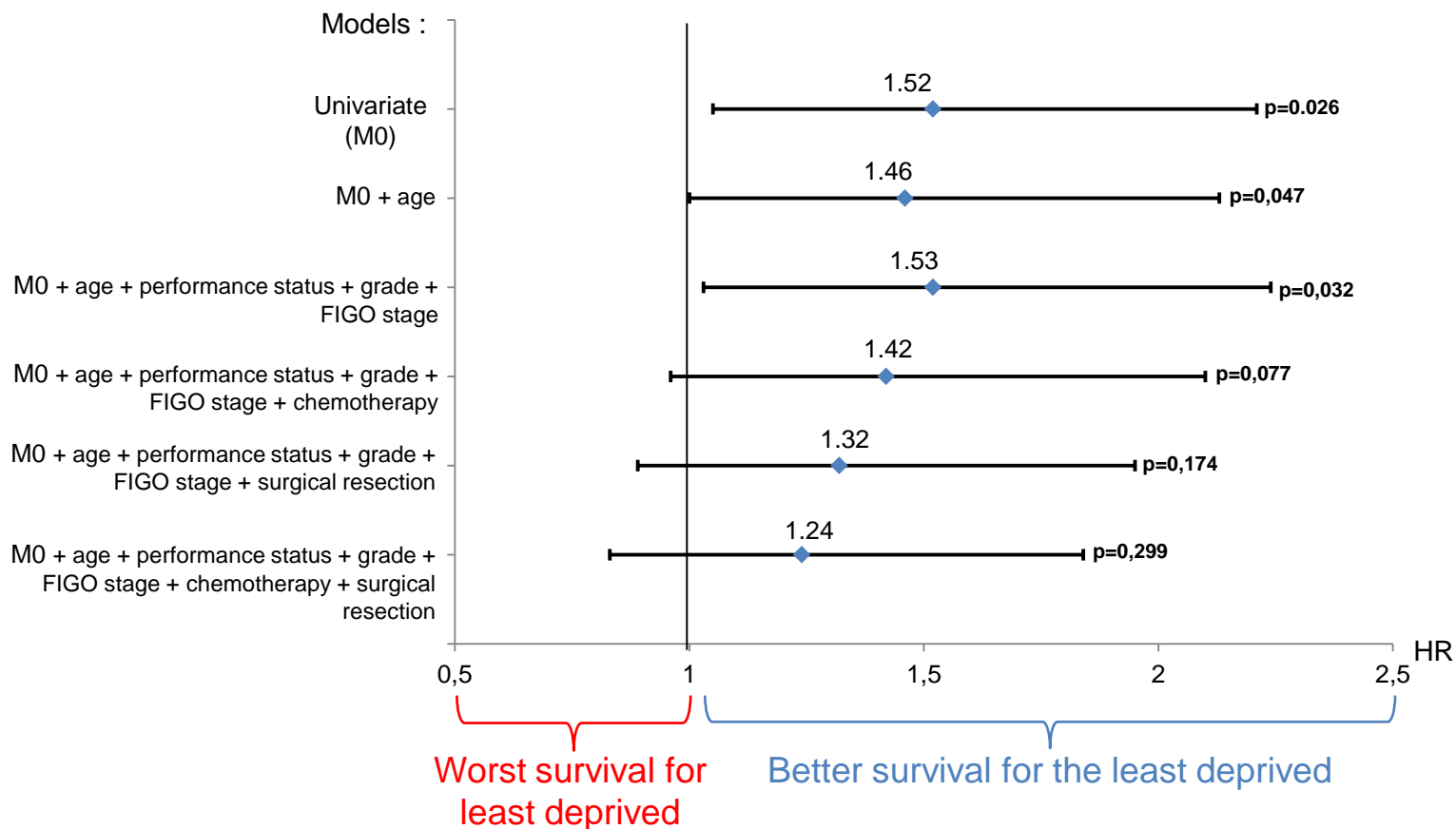
# Results - survival

Association between socioeconomic status and survival (Cox regression)



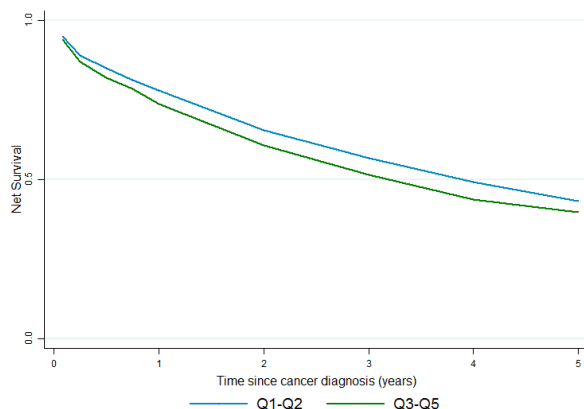
# Results - survival

Association between socioeconomic status and survival (Cox regression)



# Discussion

- Socioeconomic status had an impact on the survival

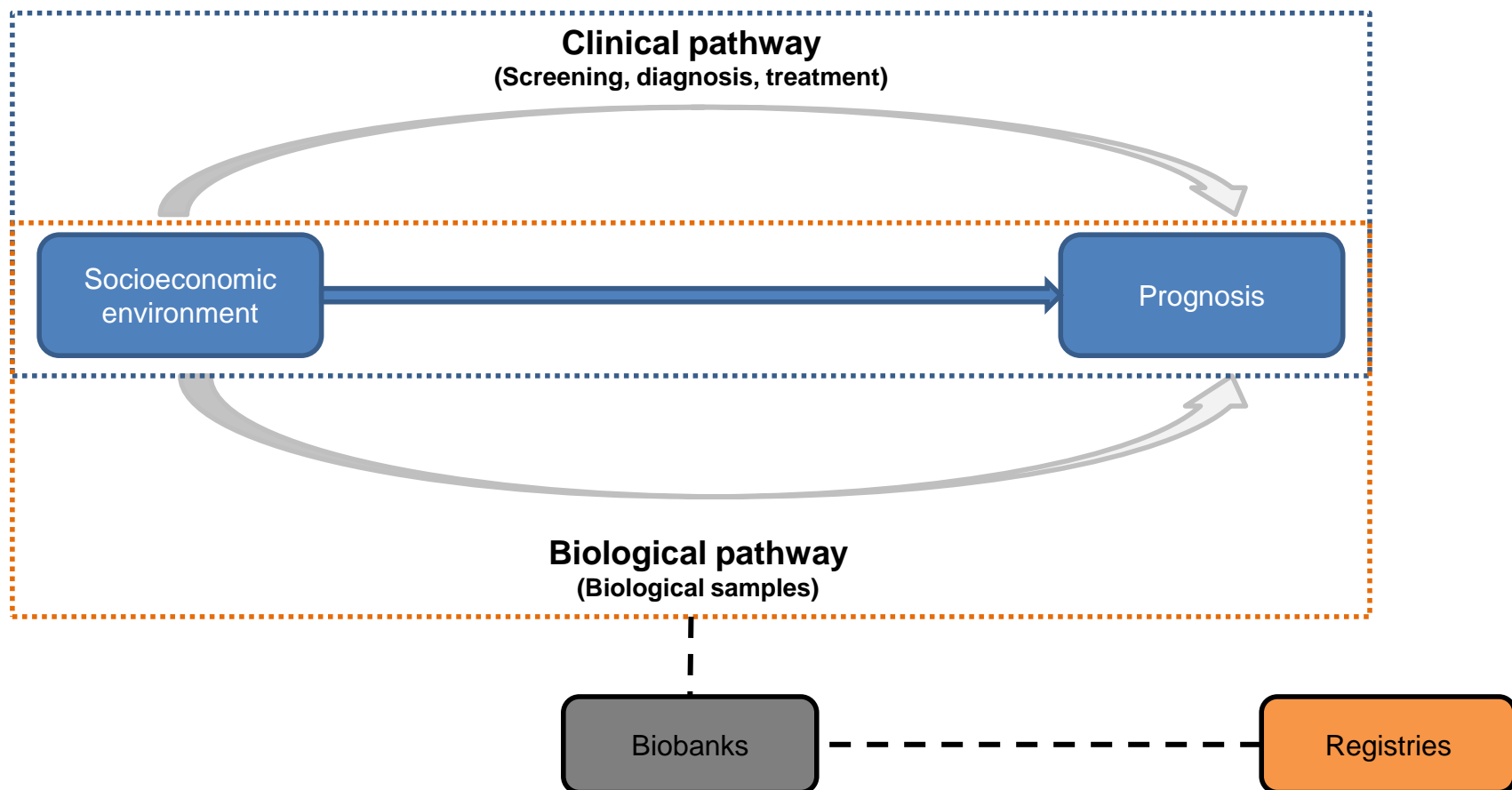


*Tron et al, 2019*

- Differences were largely due to the therapeutic management
- Studies in agreement with our results :
  - Survival better in white women than in black women (*Kim et al., 2010; Bristow et al., 2013; Brewer et al., 2015; Peterson et al., 2015*)
  - Better survival after 1 year among the most favored, then little or no difference in the long term (*Dalton et al., 2008*)
  - Excess mortality rate in patients with a low level of education, specifically in the year following diagnosis (*Jensen et al., 2008*)
  - Patients with lower socio-economic status receive treatment that does not fully meet the recommendations (*Chan et al., 2008; Bristow et al., 2013; Hodeib et al., 2015; Long et al., 2015*)

# Perspectives

- Causal models
- Link with biology (*Lutgendorf SK 2009, Tung J 2013, Stringhini S 2015*)





Thank you all for your attention

