

Type of Health Insurance Coverage (Government Health Plan vs. Non-Government Health Plan) Effect in the Survival of Colorectal Cancer Patients: The Experience in Puerto Rico, 2004

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INTRODUCTION

- Colorectal cancer (CRC) represents a major public health problem in Puerto Rico (PR).
- Studies has been demonstrated that early diagnosis and the receipt of appropriate treatment may greatly enhance the changes of survival for cancer patient. Thus, access to health insurance and the type of insurance status of cancer patients may influences their survival¹.
- In order to ensure access to health service and to eliminate inequality in medical care, the government of PR has implemented during the 1990's a Health Care Reform (HCR).
- The HCR goal was to ensure access to health services and eliminate disparities for medically indigent citizens and provide special coverage for high-risk conditions such as cancer.
- The total number of insured individuals under the Government Health Plan (GHP) was approximately 1,540,000 representing 39.5% of the total estimated Island population.

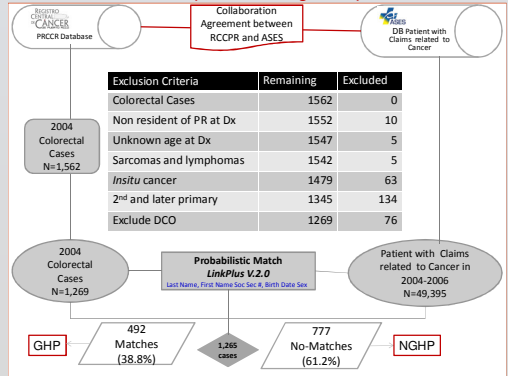
OBJECTIVE

- To compare the survival among CRC patients by type of health coverage (GHP vs. Non-GHP) we:
 - Estimate 4-year relative survival for CRC by type of health insurance for patients diagnosed in 2004
 - Estimate the relative excess risk of death in CRC patients by type of health coverage (public vs. others).

METHODS

- Patients with a diagnosis of CRC reported in the PR Central Cancer Registry database in 2004 were linked with health insurance claims data from GHP to identify GHP patients (GHP, 37.9%) and those with health insurance other than GHP (Non-GHP, 62.1%). (Diagram 1)
- CRC cases were examined and reviewed manually to ensure accuracy in the variable of interest (e.g. staging, treatment and vital status).

Diagram 1: Process to Linkage Puerto Rico Cancer Registry Database and Government Health Plan Database (Medicaid Managed Care)



Statistical Analysis

- We used χ^2 test (p-value <0.05) to assess the differences in the variables of interest.
- Four-year maximum relative survival were calculated using the incidence case and estimated using the Actuarial Method.
- A Poisson Regression Model using *stcrs* in Stata 11.1 was used to assess relative excess risks of death, after adjusting for confounders.

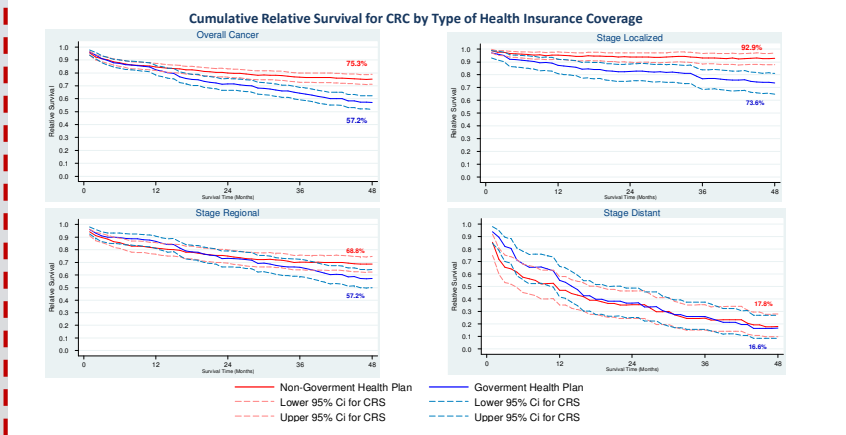
RESULTS

Table 1: Demographic Variables for CRC by Type of Health Insurance Coverage

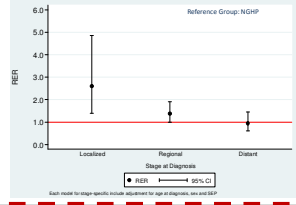
Variable	Government Health Plan N (%)	Non-Government Health Plan N (%)	Total N (%)	p-value
All	492 (38.8%)	777 (61.2%)	1,269	
Age at Dx				
Median Age*	68	65	67	0.014*
Age Group**				
<50	76 (9.8)	45 (9.2)	121 (9.5)	
50-64	231 (29.7)	184 (38.2)	419 (33.0)	0.007
65+	470 (60.5)	259 (52.6)	729 (57.5)	
Gender				
Male	423 (54.4)	248 (50.4)	671 (52.8)	
Female	354 (45.6)	244 (49.6)	598 (47.1)	0.161
SEP**				
Low SEP (1,2,3)	201 (40.9)	180 (25.9)	381 (32.1)	
High SEP (4,5)	291 (59.2)	515 (74.1)	806 (67.9)	<0.001

Table 2: Tumor Features for CRC by Type of Health Insurance Coverage

Variable	Government Health Plan N (%)	Non-Government Health Plan N (%)	Total N (%)	p-value
Histologic Grade				
Low Grade (1&2)	373 (75.8)	572 (73.6)	945 (74.5)	0.572
High Grade (3&4)	58 (7.5)	30 (6.1)	88 (6.9)	
Unknown	147 (18.9)	89 (18.1)	236 (18.6)	
Stage at Dx**				
Localized	163 (33.1)	362 (46.6)	525 (41.4)	<0.001
Regional	237 (48.2)	320 (41.2)	557 (43.9)	
Distant	65 (13.2)	75 (9.7)	140 (11.0)	
Unknown/Unstaged	27 (5.6)	20 (2.6)	47 (3.7)	
Colon Site				
Proximal	153 (31.1)	278 (35.8)	431 (34.0)	
Distal	143 (29.1)	216 (27.8)	359 (28.3)	0.384
Rectum	153 (31.1)	220 (28.3)	373 (29.4)	
Other	43 (8.7)	63 (8.1)	106 (8.3)	
Treatment**				
Unknown/No-treatment	29 (5.9)	107 (13.9)	136 (10.7)	<0.001
Surgery at P-site	278 (56.5)	533 (68.6)	811 (63.9)	
Rad/Surg+Therapy Comb	161 (32.7)	123 (15.8)	284 (22.4)	
No Surg, but other therapy	24 (4.89)	14 (1.8)	38 (3.0)	



Relative Risk of Death (Poisson Model) for CRC Cancer Patients Diagnosed in 2004



SUMMARY

- The bivariate analysis demonstrated that GHP and NGHP had differences in age at diagnoses, SEP and stage at diagnoses.
- CRC patients with GHP has poorer overall relative survival (57.2%) as compare with NGHP (75.3%).
- When we stratified by stage at diagnoses the differences by health insurance varies.
- After controlling for confounders, the RER of death for GHP were more than 2.5 times greater than NGHP patients in localized stage.
- However, in the latest stages (regional and distant) no differences were founded (p-value > 0.05).

DISCUSSION

- GHP with CRC have higher excess of risk of death compared with NGHP in early stage. This result highlights the presence of cancer disparities in PR by Health Insurance (public vs. others) in early stage that warrant further research.
- Several factors could explain this disparity, including differences in:
 - Patterns of health care coverage throughout PR; delay in treatment; treatment quality; risk factors; screening and early detection and, comorbidities
- Therefore, this study is important to generate hypothesis about disparities in cancer survival.

LIMITATIONS

- The percentage of the NGHP group without insurance is unknown. Consequently, this could lead to an underestimation of the survival for this group.
- The use of maximum survival may result in an overestimate of the true survival rate.
- We could not access other variables of interest like comorbidities that may affect CRC survival.

FUTURE DIRECTIONS:

- Continue to evaluate others factors that could explain the disparity in health insurance groups.
- To continue exploring the possibility of having claims data from other insurances (e.g. private) for monitoring cancer control efforts in PR.

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The collection of cancer-incidence data was supported, in part, by the National Program of Cancer Registries (NPCR) of the Centers of Disease Control and Prevention (CDC) by the Puerto Rico Central Cancer Registry, grant #1US5DP000782-04. The ideas and opinions expressed herein are those of the author(s) and endorsement by the Puerto Rico Central Cancer Registry is not intended nor should be inferred.