

## Case study



# Kaplan-Meier product limit technique and Cox-regression analysis to analyze the predictors of survival among patients with colorectal cancer in Jordan: a teaching case-study

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**Mots clés:** Survival analysis, Kaplan-Meier product limit technique, Cox-regression analysis, colorectal cancer

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## Abstract

In Jordan, the age standardized rate (ASR) of colorectal cancer (CRC) has increased from 12.6 per 100,000 in 2005 to 17.2 per 100,000 in 2010. According to the latest comprehensive cancer incidence report in 2012, CRC accounted for 11.3% of all newly diagnosed cases among Jordanians, and ranked the second among all cancers in both genders. The overall crude incidence rate was 8.9/100,000 population (8.6 and 9.2/100,000 males and females, respectively). The overall ASR was 16.3/100,000 (15.9 and 16.6/100,000 males and females, respectively). According to Jordan mortality registry in 2013, neoplasms were the second leading cause of death (16.4% of total deaths), and cancer of small intestine, colon, rectum and anus accounted for 2% of total deaths. This case study demonstrates the practical application of basic and advanced statistical techniques to conduct survival analysis. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 5-7 hours in class or as a take-home exercise.

## How to use this case study

**General instructions:** this case study should be used as adjunct training material for novice epidemiology trainees to reinforce the concepts taught in prior lectures. The case study is ideally taught by a facilitator in groups of about 20 participants. It can be administered as a take-home assignment or part of an examination assignment. This assignment require analysis and writing from the student.

**Audience:** this case study was developed for novice field epidemiology students. These participants are commonly health care workers working in the county departments of health whose background may be as medical doctors, nurses who work in public health-related fields. Most have a health science or medical statistics background is preferred.

**Prerequisites:** before using this case study, participants should have received lectures on survival analysis.

**Materials needed:** flash drive, flip charts, markers, computers, SPSS software

**Time required:** 5-7 hours

**Language:** English

## Case study material

- Download the case study student guide
- Request the case study facilitator guide

## Competing interest

The authors declare no competing interests.

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## Annexe

**Annex 1:** SPSS file survival analysis

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