

Title: Geographic variation in cancer incidence in Latin-language countries

Authors

Paolo Contiero¹, Giovanna Tagliabue², Gemma Gatta³, Emanuele Crocetti⁴, Alessandra Scaburri¹
and the GRELL Geographic Analysis Working Group

¹ Environmental Epidemiology Unit, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy

² Cancer Registry Unit, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy

³ Evaluative Epidemiology Unit, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy

⁴ GRELL president, <https://www.grell-network.org/steering-committee>

Abstract

Objectives

We assessed variations in cancer incidence between Latin-speaking countries and between areas within those countries. We analysed data from 103 cancer registries (CRs) affiliated to the Group for Cancer Epidemiology and Registration in Latin Language Countries (GRELL), published in *Cancer Incidence in Five Continents*, vol. XI (2008-2012) and covering 110 million persons. Our aim was to uncover areas of particularly high or low cancer incidence that can be subsequently investigated to identify factors responsible for incidence highs and lows.

Methods

Age-standardized incidence rates (based on world population) were estimated for all cancers combined by sex. CRs were grouped by geographic area according to the coefficient of variation of incidence proposed by Crocetti et al. (*Eur J Cancer Prev* 2017).

Results

Over the period 2008-2012 there were 1,151,221 and 978,472 incident cancer cases in males and females, respectively, in the 103 CRs. Countries with highest within-country variations in incidence were Ecuador, Brazil, Colombia, and Italy for males; and Brazil, Ecuador, France (with overseas territories) and Italy for females. For males, areas with lowest rates were Manabi and the Pacific area in Ecuador, and Northern Colombia (89.1; 109.4; 139.3); highest rates were in the Azores (Portugal), Florianopolis (Brazil), and metropolitan France (382; 380.7; 372.5). For females lowest rates were in Manabi and the Pacific area (Ecuador), and Southern Argentina (102; 137.8; 149); while highest rates were in Florianopolis, Belgium and Northeast Italy (325.3; 287.4; 274.9). We also identified variations in the distribution of cancer types diagnosed by area, both for males and females.

Conclusions

Our study has revealed major variations in all-cancer incidence between continents, countries and regions within countries. These data will be a starting point for further studies on specific cancers that aim to identify reasons for cancer incidence highs and lows.

Preference: Oral presentation

GRELL Geographic Analysis Working Group:

Hianga Fayssa Siqueira, Hospital de Urgência de Sergipe Gov. João Alves Filho, Aracaju, Brazil
Marcela Sampaio Lima, Hospital de Urgência de Sergipe Gov. João Alves Filho, Aracaju, Brazil
Erika Costa Brito, Hospital de Urgência de Sergipe Gov. João Alves Filho, Aracaju, Brazil
Claudia Janeth Uribe, Universidad Autónoma de Bucaramanga, Bucaramanga, Colombia
Fray Cleiton Martinez Reyes, Institute of Cancer SOLCA-Cuenca, Cuenca, Ecuador
Julie Francart, Belgian Cancer Registry, Brussels, Belgium
Sophie Couffignal, Centre for Health Studies, Public Research Centre for Health, Luxembourg
Pascale Grosclaude, Tarn Cancers Registry, Albi, France
Marc Colonna, Grenoble University Hospital, Grenoble, France
Jacqueline Deloumeaux, University Hospital of Guadeloupe, Pointe-à-Pitre, Guadeloupe, France
Clara Castro, Portuguese Oncology Institute of Porto, Portugal
Ana Miranda, Portuguese Oncology Institute of Porto, Portugal
Eva Ardanaz Aicua, Instituto de Salud Pública de Navarra, Departamento de Salud, Gobierno de Navarra, Pamplona, Spain
Jaume Galceran, Foundation Society for Cancer Research and Prevention, Pere Virgili Health Research Institute, Reus, Spain
Maria-Jose Sanchez-Perez, Hospitales Universitarios de Granada/Universidad de Granada, Granada, Spain
Rafael Marcos-Gragera, Girona Biomedical Research Institute, Girona, Spain
Isabelle Konzelmann, Fribourg Cancer Registry, Fribourg, Switzerland
Robin Schaffar, University of Geneva, Geneva, Switzerland
Jean-Luc Bulliard, University Institute of Social and Preventive Medicine (IUMSP), Lausanne University Hospital (CHUV), Switzerland
Christian Herrmann, Cancer Registry St. Gallen and Appenzell, St. Gallen, Switzerland
Grison Glaris, Cancer Registry St. Gallen and Appenzell, St. Gallen, Switzerland
Lorenza Boschetti, Azienda Tutela della Salute di Pavia, Pavia, Italy
Rosario Tumino, Azienda Sanitaria Provinciale di Ragusa, Ragusa, Italy
Adele Caldarella, Istituto per lo Studio e la Prevenzione Oncologica, Florence, Italy
Teresa Intriери, Istituto per lo Studio e la Prevenzione Oncologica, Florence, Italy
Paolo Contiero, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
Giovanna Tagliabue, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
Alessandra Scaburri, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
Andrea Tittarelli, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
Martina Bertoldi, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
Alessandro Borgini, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
Sabrina Fabiano, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
Giulio Barigelletti, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
Modonesi Carlo, Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy

[hfayssa@hotmail.com;](mailto:hfayssa@hotmail.com)

[marcelasampaio@yahoo.com.br;](mailto:marcelasampaio@yahoo.com.br)

[kostabrito@hotmail.com;](mailto:kostabrito@hotmail.com)

[pascale.grosclaude@inserm.fr;](mailto:pascale.grosclaude@inserm.fr)

[clara.castro@ipoporto.min-saude.pt;](mailto:clara.castro@ipoporto.min-saude.pt)

[mcolonna.registre@wanadoo.fr;](mailto:mcolonna.registre@wanadoo.fr)

[me.ardanaz.aicua@cfnavarra.es;](mailto:me.ardanaz.aicua@cfnavarra.es)

[sophie.couffignal@lih.lu;](mailto:sophie.couffignal@lih.lu)

jgalceran@grupsagessa.com;
amiranda@ipolisboa.min-saude.pt;
Robin.Schaffar@unige.ch;
jacqueline.deloumeaux@chu-guadeloupe.fr;
mariajose.sanchez.easp@juntadeandalucia.es;
Lorenza_Boschetti@ats-pavia.it;
rmarcos@iconcologia.net;
fraymartinezreyes@gmail.com;
isabelle.konzelmann@ovs.ch;
Jean-Luc.Bulliard@chuv.ch;
curibep@hotmail.com;
Julie.Francart@registreducancer.org;
Christian.Herrmann@kssg.ch;
Grisons-Glaris ;
rosario.tumino@asp.rg.it;
a.caldarella@ispo.toscana.it;
t.intrieri@ispo.toscana.it;
paolo.contiero@istitutotumori.mi.it;
giovanna.tagliabue@istitutotumori.mi.it;
alessandra.scaburri@istitutotumori.mi.it;
andrea.tittarelli@istitutotumori.mi.it;
martina.bertoldi@istitutotumori.mi.it;
alessandro.borgini@istitutotumori.mi.it;
sabrina.fabiano@istitutotumori.mi.it;
giulio.barigelletti@istitutotumori.mi.it;
carlo.modonesi@istitutotumori.mi.it