

Non transmissible diseases are often transmissible

Didier Raoult

Received: 27 October 2011 / Accepted: 16 December 2011 / Published online: 29 March 2012
© Springer Science+Business Media B.V. 2012

In the work, and in the comments on the work of Nicoll and Sprenger [1], Keil [2] recalled that, in addition to diseases considered as transmissible diseases (which are still the cause of 1/3 of direct deaths), it is imperative to focus attention on non transmissible diseases [3]. What I find amazing, including in the authors' response [4], is to continue to call non transmissible diseases or non communicable diseases, the chronic diseases, (including cancer and cirrhosis), which are undoubtedly caused by transmissible agents.

It is surprising that despite the recent Nobel Prize to B. J. Marshall and J.R. Warren for the discovery of *Helicobacter pylori*, which is undoubtedly the major agent of gastric cancer, Von Hausen for his discovery of Human Papillomavirus which is the agent of cervical uterus cancer, anal cancers and part of throat cancers, whereas liver cancers are almost always caused by hepatitis B or hepatitis C viruses, and that Kaposi's sarcoma, that is so common in Africa, is caused by HHV8 [3]. As much of 25% of lymphoma are associated with Epstein Barr virus (EBV), as well as the Burkitt's B-cell lymphoma and nasopharyngeal carcinoma. Burkitt's lymphoma (BL) is a malignant form of tumor associated with EBV that is endemic to central parts of Africa and New Guinea. Moreover, most of liver cirrhosis are associated to hepatitis viruses. Indeed it is hardly understandable that these are called "non transmissible" or "non communicable".

Instead, based on what Ulrich Keil said, it appears likely that the best prevention of these cancers (which represent between 15% and 40% of total cancer cases by region) [2] will be obtained the vaccination, provided that the benefits and costs of such vaccine should be studied in a reasonable manner and presented in an acceptable manner to the population. Anyway, it's time, including the best vehicles of the information like The Lancet [5], Science [6], WHO (http://www.who.int/topics/chronic_diseases/en/ and the ECDC (<http://repositorio.insa.pt/bitstream/10400.18/281/1/National%20Public%20Health%20Institutes.European%20perspective.pdf>) should abandon the term of non-transmissible diseases for diseases that are related to an infection transmitted through sexual contact, saliva, or by injection.

References

1. Nicoll A, Sprenger M. Learning lessons from the 2009 pandemic: putting infections in their proper place. *Eur J Epidemiol.* 2011; 26:191–4.
2. Keil U, Schonhofer P, Spelsberg A. Re: Nicoll A, Sprenger M. Learning lessons from the 2009 pandemic: putting infections in their proper place. *Eur J Epidemiol* 2011; 26:191–4. *Eur J Epidemiol.* 2011; 26:757–60.
3. Raoult D. Transmissible cancer in Africa. *Lancet.* 2009; 374:2052–3.
4. Nicoll A, Sprenger M. Drs. Nicoll and Sprenger reply. *Eur J Epidemiol.* 2011; 26:758–9.
5. Ikeda N, Saito E, Kondo N, Inoue M, Ikeda S, Satoh T, et al. What has made the population of Japan healthy? *Lancet.* 2011;378:1094–105.
6. Varmus H, Trimble EL. Integrating cancer control in to global health. *Sci Transl Med.* 2011; 3:101.

D. Raoult (✉)
Faculté de Médecine, URMITE, UMR CNRS 6236- IRD 198,
Aix-Marseille Université, Marseille, France
e-mail: didier.raoult@gmail.com

The Authors' Reply

In his letter [1] to our comment [2] on the paper by Nicoll and Sprenger Didier Raoult addresses one aspect of our comment, namely the topic non-communicable diseases (NCDs) versus communicable diseases (CDs) and questions the term NCDs.

A UN High Level Meeting (HLM) on NCDs was organized in New York in September 2011. The goal of this meeting was “to create a sustained global movement against premature death and preventable morbidity and disability from NCDs, mainly heart disease, stroke, cancer, diabetes and chronic respiratory disease” [3]. The UN HLM on NCDs was organized by WHO, and WHO's action plan for the prevention and control of NCDs [4] was endorsed.

In 2008 57 million deaths occurred in the world; of those 36 million died from NCDs, representing 63% of the total [5]. “Death and disease from NCDs now outstrip CDs in every region of the world except Africa, where the rate of NCDs is quickly rising” [6].

In light of these facts Raoult is mentioning a number of cancers such as gastric, liver, cervical, anal, tonsillar, nasopharyngeal and lymphoma, which have been associated with viruses or bacteria. However, it is not at all clear to what percentage these infectious agents contribute to the formation of the above named cancers. About 15 years ago microbiologists claimed that infectious agents were causing coronary artery disease. This hypothesis faded away as fast as it had arisen. The major cause of liver cirrhosis is hazardous alcohol intake and the major cause of lung cancer is cigarette smoking.

Referring to the question “What has made the population of Japan healthy?” we cite from the respective paper [7]: “Countries that have the least regional or socioeconomic disparity in longevity tend to be those in which the populations enjoy the longest life expectancies in the world”. We agree that decreased mortality rates for CDs in children and young adults played a decisive role in the rapidly increasing life expectancy in the 1950s and early 1960s.

References

1. Raoult D. Non transmissible diseases are often transmissible. *Eur J Epidemiol* 2012. doi: [10.1007/s10654-011-9643-9](https://doi.org/10.1007/s10654-011-9643-9)
2. Keil U, Schönhöfer P, Spelsberg A. Re: Nicoll A, Sprenger M. Learning lessons from the 2009 pandemic: putting infections in their proper place. *Eur J Epidemiol* 2011; 26:757–60.
3. Beaglehole R, Bonita R, Horton R et al. Priority actions for the non-communicable disease crisis. *Lancet* 2011; 377:1438–47.

4. WHO. 2008–2013 action plan for the global strategy for the prevention and control of non-communicable diseases. Geneva: World Health Organization; 2008.
5. UN. HLM New York, September 2011, Global status report on non-communicable diseases 2010 and non-communicable diseases country profiles 2011, <http://www.who.int/nmh/publications/en>, Accessed November 17, 2011.
6. UN General Assembly. Report of the Secretary General. Prevention and control of non-communicable diseases. Sixty-sixth session. New York, May 19, 2011.
7. Ikeda N, Saito E, Kondo N et al. What has made the population of Japan healthy? *Lancet* 2011; 378: 1094–105.

U. Keil

Institute of Epidemiology and Social Medicine,
University of Münster, Domagkstrasse 3,
48149 Münster, Germany
e-mail: keilu@uni-muenster.de

A. Spelsberg

Tumor Zentrum Aachen e.V., Pauwelsstrasse 30,
52074 Aachen, Germany

The Authors' Reply

Professor Raoult makes a good point, namely that infections confer important contributions to chronic conditions including a number of cancers, e.g. gastric cancer and other conditions like liver cirrhosis which are often not included in disease statistics as attributable to transmissible agents [1]. That is in addition to the important chronic infections such as HIV and tuberculosis. He rightly highlights the important role that vaccination can make in preventing chronic conditions such as hepatomas due to hepatitis B viruses and, it is anticipated cervical cancer due to human papillomaviruses [2, 3]. ECDC agrees that the distinctions between transmissible, genetic and environmental conditions are breaking down with infections causing some conditions the expression of which is then influenced by genetic and environmental factors. It is important to recognise that some conditions would hardly be there at all in an individual if they were not infected by an agent and that prevention of infection represents good primary prevention. Recognising these facts ECDC and its partners have been working since 2009 with an international consortium of researchers on a project re-evaluating the burden of communicable disease in Europe (BCoDE project) [4]. The project aims at capturing and weighing the distinct symptoms, severity and chronic sequelae of diseases. In the BCoDE project each disease or health condition is represented by an outcome tree

associating the pathogen to all known sequelae and ultimately expressing the burden in one single metric. A software toolkit, incorporating this and other crucial epidemiological information, will soon be available for Member States in order to perform their national burden of disease studies. However ECDC also recognises that vaccinations are not without cost and sometimes adverse effects. A further difficulty in Europe is that the costs of health care delivery can be very different between EU countries and it can never be known entirely what the actual benefits will be and what adverse events will arise ahead of time [5, 6]. Hence it is important to undertake careful scientific evaluations to inform decisions on offering vaccination to populations and then to undertake post-vaccination evaluations of effectiveness and safety and be prepared to review decisions in the light of the findings. Eventually decisions regarding vaccination should be taken at a national level taking into account all the specific parameters.

References

1. Raoult D. Non transmissible diseases are often transmissible. *Eur J Epidemiol* 2012. doi:10.1007/s10654-011-9643-9
2. Whittle H et al. Observational study of vaccine efficacy 14 years after trial of hepatitis B vaccination in Gambian children. *BMJ*. 2002; 325(7364):569.
3. Romanowski B. Long term protection against cervical infection with the human papillomavirus: review of currently available vaccines. *Human Vaccines* 2011; 7(2):161–69.
4. ECDC Burden of Communicable Diseases in Europe (BCoDE) project http://ecdc.europa.eu/en/healthtopics/burden_of_communicable_diseases/project/pages/project.aspx.
5. Ryan J, Zoellner Y, Gradl B, Palache B, Medema J, Establishing the health and economic impact of influenza vaccination within the European Union 25 countries. *Vaccine* 2006; 24(47–48):6812–22. ISSN 0264-410X. doi: 10.1016/j.vaccine.2006.07.042.
6. ECDC Public Health Development Narcolepsy following pandemic influenza A H1N1 2009 vaccination—ECDC update—the European Medicines Agency interim measures for Pandemrix(c) Posted May 27, 2011. http://ecdc.europa.eu/en/activities/sciadvices/Lists/ECDC%20Reviews/ECDC_DispForm.aspx?List=512ff74f%2D77d4%2D4ad8%2Db6d6%2Dbf0f23083f30&ID=1088&RootFolder=%2Fen%2Factivities%2Fsciadvices%2FLists%2FECDC%20Reviews

Alessandro Cassini

Piotr Kramarz

Edoardo Colzani

Angus Nicoll

Marc Sprenger

European Centre for Disease Prevention

and Control, Solna, 17183, Sweden

e-mail: alessandro.cassini@ecdc.europa.eu