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**Gezondheidsraad**

Health Council of the Netherlands



To the Minister of Health, Welfare and Sport

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Subject : Advisory letter *Human vaccination against Q fever: second advisory report*  
Your reference : PG/CI-2978169  
Our reference : I-381/10/KG/db/859-I      Publication no. 2010/18E  
Enclosure(s) : 2  
Date : December 14, 2010

Dear Minister,

On 18 January 2010, the Minister of Health, Welfare and Sport of that time, asked the Health Council of the Netherlands for advice regarding measures that could be taken to combat Q fever in the Netherlands (see Annex A). The Minister especially requested recommendations on the role of human vaccination and on measures to eliminate the risk of the disease being transferred through blood transfusions. On 1 July 2010 the Committee that was set up to address this issue (see Annex B) commenced by giving its advice on vaccination as this was deemed to be the most pressing issue.<sup>1</sup> I will briefly discuss the content of this first advisory report below. In its report the Committee indicated that it needed more time to answer the question whether vaccination should be offered to future professionals coming into contact with livestock. The Committee has now formulated its advice on this matter. It addressed the problem from the perspective of a public vaccination programme, utilising the seven special criteria drawn up by the Health Council.<sup>2</sup> The Committee also gives its opinion on whether vaccination must be offered to individuals who are sporadically exposed to Q fever (such as electricians or plumbers required to operate within a pen). In this letter I will set out the conclusions of the Committee, having also heard the Standing Committee on Infection and Immunity on this subject.

**Background**

The request for advice was prompted by the sharp increase in the incidence of Q fever in the Netherlands in the 2007 to 2009 period.<sup>3</sup> Q fever is a zoonotic disease (i.e. an infectious disease that can be transmitted from animals to humans) caused by the *Coxiella burnetii* bacterium (*C. burnetii*).<sup>4</sup> Prior to 2007, when the first large-scale outbreak of Q fever occurred (concentrated around the village of Herpen in Noord-Brabant), Q fever was a rare disease in the Netherlands,



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with around twenty reported cases each year. The total number of patients reported in 2007 was 168. In 2008 and 2009 the outbreak of Q fever spread further within Noord-Brabant and also reached Zuid-Limburg (with, in those years, reported cases being 1.000 and 2.361 respectively).<sup>3</sup> Outside these high risk areas cases were reported in Gelderland and Utrecht. In 2009 the Dutch government decided to tackle the source, by taking various veterinary and agricultural measures.<sup>1</sup> Dairy goats are now routinely vaccinated against *C. burnetii* and pregnant goats from infected farms have been culled. At the start of 2010 it was not yet clear whether, and if so when, the above measures would help to reduce the incidence of Q fever in humans. This prompted the Minister of Health, Welfare and Sport to question whether new research data and recent insights could lead to a reconsideration of earlier recommendations (including those of the Health Council<sup>5</sup>) and decisions concerning supplementary measures aimed at humans.

### **The Committee's first advisory report**

Australia employs a vaccination programme whereby professionals in the agricultural and veterinary sectors who are routinely exposed to *C. burnetii* (mainly abattoir workers) can have themselves vaccinated against Q fever with a vaccine that was developed and licensed in Australia, namely Q-VAX.<sup>6,7</sup> For a description of Q-VAX and the results obtained in Australia by using this vaccine, see the first report by the Committee.<sup>1</sup>

The Committee advised against vaccination of the entire population of the Netherlands, given that Q-fever was only prevalent in certain areas of the country and that information on the efficacy and safety of the vaccine was limited.<sup>1</sup> In view of the latter consideration, the Committee also advised against vaccination of regional or local populations in areas where Q-fever was prevalent, as well as against the vaccination of persons coming into contact with goats and sheep as part of their profession, such as dairy goat farmers and vets. Such vaccination was deemed inadvisable given the low disease burden among these professionals and, consequently, the limited efficiency of such a measure. In giving its advice the Committee emphasised the importance of adhering to the guidelines aimed at preventing Q fever.<sup>3,8</sup>



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The Committee did recommend that the Q-VAX vaccine be made available to certain specific categories of cardiovascular patients (as defined by the Committee) who have a heightened risk of complications on contracting Q fever.<sup>1</sup> After weighing up the danger of possible complications as a result of Q fever and the comparative paucity of data on the vaccine, the Committee came down in favour of vaccination for these groups. Your predecessor adopted this advice.<sup>9</sup>

### **Recent data on Q fever in the Netherlands**

The number of newly reported cases of Q fever this year is low and relatively constant compared to 2008 and 2009.<sup>3</sup> By 27 October 2010 the National Institute for Public Health and the Environment (RIVM) had received 492 reports of acute Q fever, of which 379 individuals contracted the disease in 2010 – significantly lower than comparable rates in previous years. Furthermore, 2008 and 2009 saw a distinct and fairly steep increase in the number of patients. So far a similar peak has not occurred in 2010, nor does the Committee expect that this will be the case. In addition the number of new patients in 2010 has possibly been overestimated as it can be difficult to establish the moment at which the disease evident; it is possible that a number of the patients had previously become infected.

It appears that the various measures taken to tackle the source of infection have had a positive effect, though the Committee is as yet unable to say whether the positive trend with regard to the number of reported cases in 2010 does indeed indicate that the Q fever epidemic in the Netherlands is nearing an end. In all probability a more conclusive answer to this question will be forthcoming after next year.

### **Vaccination of future professionals coming into contact with livestock**

So far there have been few reported cases of Q fever among professionals and trainee professionals coming into contact with livestock. There are also relatively few data concerning the level of infection among these groups. The Committee is only aware of a study conducted by the RIVM investigating the level of infection among vets and dairy goat farmers. This showed that eighty percent of these professionals produce antibodies against *C. burnetii*, compared to thirty percent of veterinary students.<sup>10</sup> From this fact the Committee concludes that vets become infected with *C. burnetii* during their professional practice, most likely by coming into contact with infected animals. However, it seems that such infection infrequently causes disease since despite



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the recent outbreak of Q fever the number of reported cases among vets is extremely limited. However, the Committee cannot rule out the underreporting of Q fever among professionals.

As mentioned above, the Committee considered the advisability of vaccination according to the seven criteria formulated by the Health Council. Based on the low disease burden among current professionals and the decrease in the total number of newly reported cases in 2010, the Committee expects that the gravity and the extent of the disease burden will also be limited with regard to future professionals (criterion 1). Based on the Australian data, findings regarding the efficacy of the vaccination (criterion 2) and any adverse reactions resulting from vaccination (criterion 3) would favour vaccination of current professionals.<sup>1</sup> The Committee expects that this will apply equally to future professionals, though given the projected low disease burden these criteria are not of official relevance.<sup>1,2</sup> It is the opinion of the Committee that the projected low disease burden makes vaccination of future professionals coming into contact with livestock less acceptable (criterion 4). There are currently no data concerning the efficiency of vaccinating future professionals in the Netherlands. However, the Committee expects that given the low disease burden among this group so far, vaccination will not significantly reduce the disease burden (criterion 6). Based on the above the Committee holds that given the limited disease burden experienced so far, vaccination of future professionals within the framework of a public vaccination programme is not warranted.

### **Vaccination of those sporadically exposed to Q fever**

In 2009, 78 cases of acute Q fever were reported, for which the most likely cause of infection was indicated to be vocational exposure (3.3 percent of the total number of reported cases of Q fever).<sup>11</sup> These 78 reported cases include professionals coming into contact with livestock as well as individuals who are sporadically exposed to *C. burnetii*, such as electricians or plumbers required to operate within a pen. At present this number is significantly lower in 2010: of the 492 newly reported cases of acute Q fever in 2010 mentioned above, 32 individuals were infected through vocational exposure, 25 of whom first contracted the disease in 2010.<sup>12</sup> The Committee deems it likely that this number will decrease further (criterion 1). Though data concerning the vaccination of those sporadically exposed to Q fever are lacking, Australian data pertaining to the vaccination of professionals coming into contact with livestock<sup>1</sup> lead the Committee to believe that the balance between the efficacy of the vaccine (criterion 2) and the possible side effects (criterion



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3) would also favour vaccination in the case of those sporadically exposed to Q fever. It is the opinion of the Committee that the projected low disease burden makes vaccination of this group, too, less acceptable (criterion 4). Data are lacking on the efficiency of vaccination (criterion 6). The Committee holds that given the low disease burden so far, vaccination of individuals sporadically exposed to Q fever is not warranted.

Here, too, the Committee emphasises the importance of adhering to the guidelines aimed at preventing Q fever.<sup>3,8</sup>

### **Qualifying observations**

Further to its advice not to offer vaccination against Q fever to future professionals coming into contact with livestock and individuals sporadically exposed to Q fever, the Committee wishes to make two qualifying observations.

Firstly, the Committee was forced to base its advice on limited research data. It therefore recommends that further research be conducted regarding infection and disease burden among future professionals coming into contact with livestock, such as veterinary students. This group is of particular concern to the Committee as it is likely that the majority of veterinary students will become infected with *C. burnetii* in the course of their future career.<sup>10</sup> Such research would also indicate whether cases of Q fever were underreported for this group.

Secondly, the Committee notes that it has approached the issue of vaccinating future professionals and individuals sporadically exposed to Q fever from the point of view of a public vaccination programme. Approaching this issue from the point of view of the relationship between employer and employee could possibly have led to a different conclusion. Under the terms of the Occupational Health and Safety Act (Arbowet), employers must at all times provide a healthy working environment for employees. From a corporate medical point of view, therefore, employers tend to err on the side of precaution. Where possible, an effort is made to eliminate occupational hazards. In this respect their approach to risk differs from that of public health care programmes. In the latter case, decisions on interventions are made after an assessment of the acceptability of the risks and of the efficiency of the intervention. Although the recommendations on vaccination against Q fever in this report are based on such risk assessment, they potentially affect employers and corporate medical officers, for if the Dutch government decides against vaccinating professionals, future professionals or individuals sporadically exposed to Q fever, then, in the view of the Committee, this vaccine would by definition fall outside the duty of care of



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employers. An important consideration in reaching this conclusion is the fact that Q-VAX is not registered for use in the Netherlands and that the Committee deems it unlikely, as it indicated earlier, that such registration can still take place, given the available data and the relevant requirements.<sup>1</sup>

The Committee suggests that the different perspectives in respect of vaccination in the context of a public programme and in the context of the Occupational Health and Safety Act be charted in more detail.

### **Measures with regard to blood transfusions and the use of body tissue**

With this letter the questions on the possible role of vaccination in combating Q fever in the Netherlands are answered. In a separate advisory report that has yet to be drawn up, the Committee will examine the measures referred to in the request for advice that could be taken to curb the risk of Q fever infection as a result of blood transfusion. In line with the request from your ministry, the Committee will at the same time discuss possible measures regarding the use of body tissue, for instance in transplants.

Yours sincerely,

(signed)

Professor L.J. Gunning-Schepers  
President, Health Council of the Netherland



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## Litrature

- 1 Gezondheidsraad. Vaccinatie van mensen tegen Q-koorts. Eerste advies. Den Haag: Gezondheidsraad; 2010; publicatienr. 2010/08.
- 2 Health Council of the Netherlands. The future of the National Immunisation Programme: towards a programme for all age groups. The Hague: Health Council of the Netherlands, 2007; publication no. 2007/02E.
- 3 Rijksinstituut voor Volksgezondheid en Milieu. Themapagina Q-koorts voor professionals. internet. [http://www.rivm.nl/cib/themas/Q-koorts/q-koorts-professionals.jsp#index\\_1](http://www.rivm.nl/cib/themas/Q-koorts/q-koorts-professionals.jsp#index_1).
- 4 Parker NR, Barralet JH, Bell AM. Q fever. *Lancet* 2006; 367(9511): 679-688.
- 5 Health Council of the Netherlands. Advisory letter: Meeting on Q fever in the Netherlands. The Hague: Health Council of the Netherlands, 2008; publication no. 2008/28.
- 6 Gidding HF, Wallace C, Lawrence GL, McIntyre PB. Australia's national Q fever vaccination program. *Vaccine* 2009; 27(14): 2037-2041.
- 7 CSL Biotherapies. Q-VAX Q fever vaccine and Q-VAX skin test. Product Information - TGA approved. 2008. Australië.
- 8 KIZA-NCvB, Kwaliteitsbureau NVAB. Q-koorts, Factsheet voor bedrijfsartsen. [www.kiza.nl/content/q-koorts-factsheet-voor-bedrijfsartsen](http://www.kiza.nl/content/q-koorts-factsheet-voor-bedrijfsartsen). 25-5-2010.
- 9 Minister van VWS. brief van de minister van Volksgezondheid, Welzijn en Sport. 22894 28286 nr. 277. 21-7-2010. Den Haag.
- 10 Van Duynhoven Y., Schimmer B, Steenberg J., Van der Hoek W. The story of human Q-fever in the Netherlands. International Q Fever Conference, Breda . 25-2-2010.

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- 11      Rijksinstituut voor Volksgezondheid en Milieu (RIVM). Surveillance arbeidsgerelateerde infectieziekten. Heimeriks K, Beaujean D, and Maas J. Analyse arbeidsgerelateerde infectieziekten 2009. [Rapport 205014007/2010]. 2010. Bilthoven.
  
  - 12      Van der Hoek W. Verbal communication. 2010.



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## Request for advice

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On 18 January 2010 the President of the Health Council received the following request for an advisory report from the Minister of Health, Welfare and Sport regarding Q fever:

On 4 December 2009 the Minister of Agriculture, Nature and Food Quality and I received a number of recommendations on measures to combat Q fever from a group of experts led by the RIVM. One of these recommendations was to ask the Health Council for advice on the added value of human vaccination against Q fever. My staff have discussed this matter with you on several previous occasions. This letter constitutes a formal request for an advisory report on human vaccination against Q fever. I also request you to advise me again on measures to prevent Q fever from being contracted through blood transfusions.

### Vaccine

There is currently only one available vaccine, which is licensed in Australia. There, the vaccine is used to protect professionals in the veterinary sector. Due to the serious side effects that the vaccine can cause in individuals that are, or have been infected with *Coxiella burnetii*, serological tests for this bacterium must be performed prior to vaccination.

Based on the RIVM's advice, I decided in 2007 that, given the possible side effects of the vaccine, a vaccination programme was not warranted. The situation regarding Q fever has progressed since 2007 and the question arises whether new research data and recent insights could lead to a reconsid-

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eration of earlier recommendations and decisions. For example, at the start of 2009 the journal *Vaccine* published new Australian data on Q fever.

I request your advice on the following questions:

- 1 What role can human vaccination play as a supplementary measure to combat Q fever?
- 2 Can target groups be defined for which vaccination could be important in preventing Q fever?  
The groups I have in mind are those that are particularly vulnerable and those that are at a higher risk of exposure.
- 3 Is the existing vaccine Q-VAX, produced by CSL Limited Australia, sufficiently effective?
- 4 Is the existing vaccine Q-VAX, produced by CSL Limited Australia, safe? Please keep in mind the fact that a serological test must be performed prior to vaccination.

The Australian government has meanwhile indicated its willingness to cooperate in providing an export licence if required.

I assume that you will consult with the RIVM and the Medicines Evaluation Board in answering these questions.

#### Blood donation

In 2008 you advised me that the temporary exclusion of blood donors originating from areas affected by Q fever was not warranted at the time. In 2008 you also indicated the lack of a reliable screening test for Q fever. Since then, Sanquin has worked with a number of hospitals to develop a screening test for Q fever, aimed at blood donors. This test could prevent the automatic exclusion of all donors from high risk areas in case of new outbreaks of Q fever; exclusion on such a large scale would greatly reduce the available supply of donated blood. I request your advice regarding the introduction of the aforementioned test.

I look forward to receiving your advisory report as soon as possible, in any case within six months.

Yours sincerely,

The Minister of Health, Welfare and Sport,

Signed,

Dr A. Klink

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## The Committee

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- Prof. E.J. Ruitenber*g*, *chairman*  
Emeritus professor of immunology, University of Utrecht; Professor of international health, VU, Amsterdam
  - Prof. J.G. Aarnoudse  
Professor of obstetrics en gynaecology, University Medical Center Groningen
  - M. Augustijn, *observer*  
Ministry of Agriculture, Nature and Food Quality, The Hague
  - Prof. C. Boog  
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  - Prof. W.J.H.M. van den Bosch  
Professor of healthcare innovation, University Medical Center St. Radboud, Nijmegen
  - Prof. A. Brand  
Professor of transfusion medicine, Leiden University Medical Centrum
  - Prof. E. Hak  
Professor of clinical pharmacoepidemiology, University Medical Center Groningen
  - Prof. J.A.P. Heesterbeek  
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- W. van der Hoek,  
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- Dr H. Houweling, *adviser*  
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- Dr R. van Houdt, *scientific secretary*  
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#### Geraadpleegde deskundigen

- Prof. J.P.M. van Putten  
Professor of Infection Biology, University Utrecht

#### The Health Council and interests

Members of Health Council Committees – which also include the members of the Advisory Council on Health Research (RGO) since 1 February 2008 – are appointed in a personal capacity because of their special expertise in the matters to be addressed. Nonetheless, it is precisely because of this expertise that they may also have interests. This in itself does not necessarily present an obstacle for

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membership of a Health Council Committee. Transparency regarding possible conflicts of interest is nonetheless important, both for the President and members of a Committee and for the President of the Health Council. On being invited to join a Committee, members are asked to submit a form detailing the functions they hold and any other material and immaterial interests which could be relevant for the Committee's work. It is the responsibility of the President of the Health Council to assess whether the interests indicated constitute grounds for non-appointment. An advisorship will then sometimes make it possible to exploit the expertise of the specialist involved. During the establishment meeting the declarations issued are discussed, so that all members of the Committee are aware of each other's possible interests.