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From the authors:

We appreciate and agree with the comments of M. Mondoni and colleagues, that the results of the ongoing prospective Italian multicentre trial (www.ClinicalTrials.gov identifier NCT02045394) will be of considerable interest for the management of haemoptysis, a frequent and severe symptom, especially since there is no clear consensus concerning aetiology and treatment. Interestingly, beyond determining the prevalence of diseases that may present with haemoptysis, their epidemiological results will be analysed according to the severity of the symptom. More importantly, their trial will hopefully make it possible to analyse the sensitivity and specificity of complementary tests, such as chest radiography, chest computed tomography (CT) and bronchoscopy alone and in combination in the diagnosis of different causes of haemoptysis.

We acknowledged that our observational retrospective study had some limitations and possible bias due to the way data was collected, that is to say through hospital discharge diagnosis codes [1]. However, the national administrative database (PMSI/medicalisation of information system programme) has gathered national administrative health data in France from every french public and private teaching and nonteaching healthcare facility since 1997. Each hospital's budget depends on the medical activity, as described by a specific computer program, which compiled discharge abstracts related to all admissions since 2008. The fact that these national data are necessary to allocate hospital budgets has considerably encouraged improvements in data quality in terms of accuracy and exhaustiveness, and the results obtained in our study are consequently different from those in the publication of BOULAY *et al.* [2], where data were collected between 1994 and 1997. In France, diagnoses identified during hospital stays have been coded according to the 10th edition of the International Classification of Diseases (ICD-10) since 1998. In ICD-10, there is a single specific code for haemoptysis (ICD-10 code R042). Therefore, and importantly, we are confident that the symptom was not over- or misreported in our study.

Our database did not allow us to collect data from out-patients, who may only have presented mild haemoptysis. There is therefore a possible risk that we over-selected moderate and severe haemoptysis and missed some cases of mild haemoptysis [3]. Physicians may also have underreported mild haemoptysis in patients with a previously known diagnosis of lung cancer when the patient was hospitalised with this symptom, but not due to it. The aetiology of haemoptysis may have been reported with a delay, and we believe this is particularly the case for lung cancer. Indeed, because it may take some time to gather results from other complementary examinations or pathology reports, the patient may have been discharged from the initial hospitalisation without a diagnosis of lung cancer, even though the physician suspected the disease. To report lung cancer in the PMSI, it is necessary to have definite pathological confirmation of the diagnosis. However, we were aware of this possible bias and considered that lung cancer was the aetiology of the initial haemoptysis episode when it was diagnosed within 2 months of the initial haemoptysis. We therefore discussed the hypothesis that lung cancer developed in 4% of patients with initial cryptogenic haemoptysis during the 3 years of follow-up [1]. This hypothesis is in accordance with previously published studies [4].

Despite these unavoidable biases and possible inaccuracies due to the coding system, we believe that our 5-year study provided unequivocal and important data regarding the 10 million patients who are hospitalised yearly in France, among whom 15 000 (0.2%) were admitted for haemoptysis or have haemoptysis as a complication of their hospital stay [1]. We provided important information regarding prognosis and follow-up. We showed that the frequency of recurrence was relatively low, since 84% of patients with initial haemoptysis had no recurrence within the 3 years of follow-up. Moreover, even though it was explored in small prospective studies, we found substantial mortality rates during the initial stay as expected [5] but, more interestingly, during the follow-up as well. Indeed, the 3-year in-hospital mortality rate, excluding lung cancers, was high at 20%. Even if death may have been more closely related



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to the underlying disease than to haemoptysis itself, these results must be taken into account and suggest that follow-up after the initial haemoptysis needs to be sustained [1].

Awareness of the likelihood of cancer associated with haemoptysis is of course central. However, our study also provided important information regarding the epidemiology of less frequent aetiologies of haemoptysis. For example, among them, we demonstrated that the prevalence of tuberculosis associated with this symptom was around 3%, but seems to have decreased steadily between 2008 and 2012 (from 3.4% to 2.5%). We believe our results bring important and, until now, unknown information about high-income countries. We feel that the association of large retrospective but comprehensive cohort studies [1] and smaller but prospective [6] studies will help to better characterise this ominous symptom.



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Haemoptysis associated with high 3-year in-hospital mortality in large retrospective cohort study in France <http://ow.ly/UeyV9>

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Lung function defects in treated pulmonary tuberculosis patients

To the Editor:

In their study, AMARAL *et al.* [1] have nicely demonstrated the association of obstructive and restrictive lung function defects in patients with a past history of tuberculosis (TB). However, a few points regarding these tubercular sequelae need to be discussed in order for the results to be fully understood.

Verbal confirmation of past TB, which was performed in the study, is accompanied by the inherent drawback of “recall bias”. This major limitation was not mentioned in the study. Scrutinising past medical records and/or obtaining a plain chest radiograph along with verbal confirmation might have consolidated the diagnosis.

As this was a cross-sectional study, the time elapsed since the occurrence of TB seemed to be a major factor in deciding the occurrence of TB sequelae. Therefore, this confounding factor should be adjusted for before interpreting the results. Associating the time duration with lung function defects might also have