

Eckardt Johannig, M.D., M.Sc. (Albany, N.Y.)

Pierre Auger, M.D., M.Sc. (FRCPC, Quebec, Canada)

Tuesday, October 12, 2010

Re: Comment request on the draft report of New York State Toxic Mold Task Force Report to the Governor and Legislature Review Draft for Public Comment August 2010

As occupational and environmental physicians, we are directly involved in the evaluation and treatment of patients with mold exposures and adverse health effects in the State of New York and throughout the U.S. We have also conducted several scientific studies over the years on this topic and have published a number of peer-reviewed studies in scientific journals. Additionally, we helped organize and host several international conferences since 1994 in Saratoga Springs that addressed the research and public health implications regarding bioaerosols, fungi, bacteria and its toxic or allergenic metabolites (Saratoga Springs, N.Y. conferences).

We appreciate the tremendous effort and intent of the legislators and the New York State Toxic Mold Task Force to address this timely and important public health issue and explore possible prevention opportunities and regulatory public health gaps. Clearly, legislative initiatives to control unnecessary exposures to indoor mold (regardless whether these are primarily allergenic, toxic, irritant or infectious-type fungi) will be most beneficial for the general public and as secondary prevention also for patients suffering from the ill effects of such exposures in their homes, the work place or public buildings. Both our experience and our research have shown that it is most beneficial to lower and minimize the indoor mold exposures to the lowest levels, preferably below the levels found typically outdoors, and also eliminate any exposure to fungi not typically found in- or outdoors. Numeric guidelines are difficult to establish due to methodological problems with current sampling practices and the different individual health outcomes of exposed people and their potential risk categories. This is something that the task force well recognized and addressed.

However, the New York State Toxic Mold Task Force draft report from August 2010 falls short on the review of the current knowledge and literature of the adverse health effects of mold, in particular the toxic effects. It misjudges and ignores critical scientific evidence for several reasons. The Task force

missed the opportunity to fully explore and objectively review the current and relevant scientific evidence and professional knowledge. It should have also included the experience and participation not only of practitioners who evaluate exposures and patients but other experts in the field of “toxic mold”. It should have allowed a public discussion of the experts and their opinions. During the few meetings that were open to the public many of the listed panel members were not even present! This may be in part due to the internal document development process and selection of the panel members which appeared to be more driven by political, organizational and institutional priorities and considerations. We do not want to question the integrity, intention and motives of any panel members and respect their participation in this Task Force. However, the Panel would have gained value and authority if it had involved truly recognized experts with theoretical and practical experience regarding the investigation of exposure and its characterization as well as the health effects of mold, in particular of toxigenic mold. It becomes apparent, that there was no expert with a background in microbiology and toxicology (specifically mycotoxins) that was familiar with the relevant literature and public health implications / regulation.

Only two of the listed members on the Panel were physicians. Only one of them was a clinician, a board certified pediatric pulmonologist, from a major New York City University hospital, who specializes in asthma and allergy. None of the listed panel members is known or recognized as a toxicologist or mycotoxin expert or has ever published any paper specifically on “toxic mold” that is cited, for example, in PubMed. I recall that the Pediatric physician said in his opening remarks at an initial public meeting that “toxic mold” is not a problem in his view, but allergens etc.”. The deficit is further reflected in the rather limited and shallow review of the literature that became available since the now “dated” IOM review from 2004, which seemed to be the basis of the Section B “Health effects of mold and dampness exposure”, in particular in the section on “mold toxins”. Although the more recent “**WHO guidelines for indoor air quality: dampness and mould**” published in 2009 is mentioned in the introduction of the draft document under “1. Current scientific evidence”– it is disappointing that the WHO document was not reviewed at all in this 2010 draft document by the NYS Task Force (which was even acknowledged in a footnote on page 25). Instead, under the subtitle of the draft NYS document “current scientific evidence” it is stated on page 25 that “*The most current and thorough evaluation conducted to date of the state of the scientific evidence regarding the public health significance of, and response to, dampness*

and molds in buildings is the Institute of Medicine (IOM, a component of the National Academies) report entitled Damp Indoor Spaces and Health (2004).”!?

It is a clear weakness and deficit that the authors/reviewers of this draft paper contrast and question the documented clinical case studies, epidemiological and field study results of original research regarding health effects of toxigenic fungal exposure with highly questionable review/position papers by authors who do not produce any data or evidence but only self-serving opinions on the topic and are well known “experts” and resources for defense lawyers in mold litigation cases (i.e., Fung, Bardana, Lees-Haley, Kuhn and Ghannoum, etc.).

A more detailed review paper on the topic, the Masur et Kim paper from 2006, received little attention although it was listed as a reference. It or others could have served as a more detailed reference for the various mycotoxins and associated clinically-reported health effects. Instead of diffusing the issue of toxic mold and broadening the definition with a “simple dictionary definition” the committee should have consulted such references and authorities as the “Mycotoxin Fact Sheet”

(http://irmm.jrc.ec.europa.eu/EURLs/eurl_mycotoxins/Documents/JRC%2060040_Mycotoxin%20factsheet_3rd%20edition.pdf) from European Commission Joint Research Center (JRC) that lists and describes most of the relevant mycotoxins and its current regulations by public health agencies or similar documents that are listed for example under www.myxotoxin.de (http://mycotoxin.de/docs/public/tmp1t_article.asp?CntID=22&PCat_ID=2&Lang=EN) or similar sources.

The committee would have been well advised to independently review the many studies regarding mycotoxins or molds and animal or human health that have appeared on the topic since the IOM, Masur et al and even the WHO reviewed papers, now up to 6-10 years old. Such an up-dated and fresh look could have included study papers that were available during the first part of 2010 that are most relevant for this review (for example: [Miller JD, Sun M, Gilyan A, Roy J, Rand TG. Chem Biol Interact. 2010 Jan 5;183\(1\):113-24. Inflammation-associated gene transcription and expression in mouse lungs induced by low molecular weight compounds from fungi from the built environment.;](#) [Mycopathologia. 2010 Jun 13. Building-Associated Neurological Damage Modeled in](#)

Human Cells: A Mechanism of Neurotoxic Effects by Exposure to Mycotoxins in the Indoor Environment. Karunasena E, Larrañaga MD, Simoni JS, Douglas DR, Straus DC.) There are now more than 135 papers listed in pub med for the search term: mycotoxins, human, health – only little of what is reflected in this section on the health effect review of the draft paper.

Although the WHO meeting group in 2007 on which the WHO document from 2009 is based on had not the opportunity to consider and include such newer wealth of information that was now available to the New York Task Force, nevertheless the WHO work group members concluded that there was sufficient evidence to consider non-allergic health adverse effects after indoor toxic mold exposure:

The background material for the review was prepared by invited experts and discussed at a WHO working group meeting, convened in Bonn, Germany, 17– 18 October 2007. The conclusions of the working group discussion are presented in Chapter 5 and are reproduced in this executive summary, as follows.

- *Sufficient epidemiological evidence is available from studies conducted in different countries and under different climatic conditions to show that the occupants of damp or mouldy buildings, both houses and public buildings, are at increased risk of respiratory symptoms, respiratory infections and exacerbation of asthma. Some evidence suggests increased risks of allergic rhinitis and asthma. Although few intervention studies were available, their results show that remediation of dampness can reduce adverse health outcomes.*

- *There is clinical evidence that exposure to mould and other dampness-related microbial agents increases the risks of rare conditions, such as hypersensitivity pneumonitis, allergic alveolitis, chronic rhinosinusitis and allergic fungal sinusitis.*

- ***Toxicological evidence obtained in vivo and in vitro supports these findings, showing the occurrence of diverse inflammatory and toxic responses after exposure to microorganisms isolated from damp buildings, including their spores, metabolites and components.***

- *While groups such as atopic and allergic people are particularly susceptible to biological and chemical agents in damp indoor environments, adverse health effects have also been found in non-atopic populations.*

- *The increasing prevalences of asthma and allergies in many countries increase the number of people susceptible to the effects of dampness and mould in buildings.*

In our view and expertise, we think the public and the legislators would be better guided by the WHO health assessment and conclusions from 2007. It is disappointing that the NYS Panel did not draw on the

national and international expertise in this field and obviously was overwhelmed with this task under these circumstances. We would agree with the panel that more research is needed to better understand the correlation and causation of toxic mold exposure and adverse health effects, including neurological complications that are often reported by the patients.

In any case, from a public health perspective, if sufficient data is not available to establish a clear dose-response relationship or causation, however, clinical information is sufficient to imply a likely adverse health effect outcome. The precautionary principle should be applied until such reliable data becomes available. This principle should guide legislators and the public – and I think that at this point the committee should be expanded to include practitioners and scholars with a proven research and publication record on the topic. The draft report should be further revised to include the WHO report and other updated publications and scientific studies.

In conclusion, any initiative that results in a reduction and control of unnecessary indoor mold exposures to the public and people at risk is a desirable outcome of this effort and that is the intent of our comments.