

2010: The Year of the Lung

ON 14 FEBRUARY 2010, 1.4 billion Chinese, at home and wherever else they happen to be living, will celebrate 'The Year of the Tiger', with parades, fireworks and festivities lasting several days. Even better than that, although less well appreciated at the moment, is that on 1 January 2010, the first day of a new decade, 6.2 billion people—every person who breathes on planet earth—were welcomed to 'The Year of the Lung': no parades or fireworks, but a whole year to celebrate the magnificence of healthy lungs and to rally around the needs of people with lung diseases. Like many good ideas, this one was a team effort that was inspired by individual patients suffering from lung disease and the associations that represent them, all of whom were increasingly dissatisfied with their (often) clinically inadequate and (usually) administratively burdensome care, resulting largely from widespread lack of awareness of the importance of lung disease. Members of the Forum of International Respiratory Societies (FIRS)—which includes the Asociación Latinoamericana del Thorax (ALAT), the American College of Chest Physicians (ACCP), the American Thoracic Society (ATS), the Asia Pacific Society of Respiratory (APSR), the European Respiratory Society (ERS), the International Union Against Tuberculosis and Lung Disease (The Union), and the Pan African Thoracic Society (PATS)—took notice and responded with a formal commitment and elaborate plan of support for 2010: The Year of the Lung.

GOALS

According to a statement from FIRS,

The Year of the Lung campaign is based on the belief that the lack of public awareness of lung health is an important barrier to progress in the prevention, diagnosis, treatment, and development of discoveries in lung diseases. The specific goals of the campaign are to raise awareness about lung health among the public, initiate action in communities worldwide, and advocate for resources to combat lung disease, including resources for research and research training programs worldwide.

One of the key objectives is to begin to build a social movement for policy action, facilitated through an interactive web site—www.yearofthelung.com—which will contain informational and educational materials, a toolkit for customized, local action and grassroots organizing, and materials for media, public relations and advocacy. Constituents of FIRS will contribute

jointly to these activities, but all individual members are strongly encouraged to celebrate and promote The Year of the Lung by informing and galvanizing support from professional friends and acquaintances, and by demanding action from political delegates and other people of influence.

AWARENESS

But is there a lack of public awareness? Are lung diseases really 'out of sight, out of mind'? After all, tens—possibly hundreds—of millions of people are afflicted with lung diseases each year, and they cause 19% of all deaths in the world and 15% of disability adjusted life years. Nevertheless, a recognition and attribution problem does exist that other disease champions, cardiovascular diseases for example, do not have to deal with. Myocardial infarctions (the leading cause of heart disease, the number one cause of deaths in rich countries) and cerebrovascular attacks (the third leading cause of deaths) have been united under a common pathogenetic rubric, arteriosclerosis—a systemic inflammatory process—which offers a huge clinical and public relations advantage. Not only does specific treatment of the two conditions overlap, but prevention is identical, which means that awareness is automatically amplified and attention easily focused. Not so with pulmonary diseases. Consider the 'Big Five' lung disorders—lung cancer, chronic obstructive pulmonary disease (COPD), pneumonia, tuberculosis (TB), and asthma—which include two, chiefly smoking-related, conditions, two basically different kinds of infections and a mainly allergic disorder. No common theme to take hold of and run with, except for the thin thread of smoking, which causes cancer and COPD, is a risk factor for pneumonia and TB and worsens asthma. But targeting smoking will not add much: everyone already knows that you shouldn't smoke and that no one knows how best to stop. Increased awareness about lung diseases is vital, though, because they are killing more and more people every year and something must be done about them. As a reminder, here are some of the stark facts about the current status and future projections for each of the Big Five.

Lung cancer

In 1964, after publication of the US Surgeon General's report that linked cigarettes with lung cancer,¹ Americans began to cut down on smoking: a quintessential example of the benefits of increased awareness. But enough continued to smoke or started to

smoke afterward, so that even today in the US, lung cancer remains by far the largest cause of death from any malignancy, causing more deaths than the next three most common types of cancer combined: breast cancer in women, prostate cancer in men and colorectal cancer in men and women. During lung cancer's ascendancy in the US and other industrialized countries, around 90% of all cases of the malignancy were attributable to cigarettes. Today, owing to diminished rates of smoking in certain of the old bastions of lung cancer, the disease has decreased appreciably in men and begun to fall or level off in women. But this modest statistical gain is hugely outweighed by the increasing incidence of and death rate from lung cancer currently observed in several European countries (Hungary and Poland, for example), and in newly industrializing and developing countries (China, for example). In 2004, according to the WHO, 1.3 million people died from lung cancer worldwide, half a million more deaths than from the next most common malignancy, stomach cancer. Moreover, global deaths from all cancers are projected to rise substantially in the future, from 7.4 million in 2004 to 12 million in 2030,² with lung cancer not only holding on to its number one position, but likely to increase faster than many other types because of the accompanying upsurge of smoking. Tobacco consumption remains the most important avoidable risk for cancer, not only for lung cancer but also for cancer of the bladder, kidney, oropharynx and sinuses, esophagus, pancreas and many other sites. The perils of smoking have attracted considerable public health attention, but surely—given the horrors of the future forecasts—much more needs to be done. While the Chinese are celebrating the Year of the Tiger, they should reflect on the high prevalence of smoking among Chinese men and the rising rates among women, the enormous number of deaths countrywide recently attributed to smoking, and the fact that cancer caused by far the most of these deaths.³

COPD

Like lung cancer, the incidence of COPD, another tobacco-related disease, is growing throughout the world as smoking prevalence and life expectancy are both increasing. Currently, COPD is fourth among the leading causes of mortality in the US, and within the next decade, unless the consumption of tobacco declines further, COPD will surpass stroke as the third leading cause of death.⁴ The WHO has projected that COPD, now the fifth leading cause of death in the world, will have become the third by 2020.⁵ Most cases of COPD are caused by the toxic components of cigarette smoke, but hazardous occupational and environmental exposures have also been implicated. Genetic predisposition is assumed to be important, but apart from the well-documented enhancing effect of α_1 -antitrypsin deficiency, other heritable suscepti-

bility traits have not been identified. COPD is defined by the presence of airflow limitation that is not fully reversible, which requires measurement of expiratory airflow by spirometry or some other test of lung function. Beliefs that the worldwide prevalence of COPD was underestimated were borne out by the results of a recent rigorously conducted study, using pre- and postbronchodilator spirometry, in 12 diverse international sites where the overall prevalence of COPD in adults aged 40 years and older was 10.1%, 11.8% in men and 8.5% in women.⁶ Additional dire news for a steadily aging global population was the finding in the majority of participating sites that the prevalence of COPD in both men and women aged 70 years and older exceeded 20%. Increased awareness of this escalating scourge is one of the goals of The Year of the Lung.

Childhood pneumonia

Infectious pneumonias have almost certainly been major causes of death of human beings since the time our ancestors first appeared on earth a million or so years ago. Furthermore, despite an ever-expanding armamentarium of preventive vaccines, powerful antibiotics and sophisticated means of caring for critically sick patients, pneumonias remain important killers. Two very large groups of people are still at particular risk, but where these people currently live differs remarkably. The first group consists of the elderly and other individuals already weakened by coexisting disease—intractable heart failure, widespread malignancies, advanced dementias or other chronic conditions; the majority of these victims live in rich countries, where life expectancy is lengthy and chronic comorbid conditions are common complications of living to a ripe old age. The second group is comprised of the very young: few people realize that infectious pneumonias are the world's number one killer of infants and children below 5 years of age and account for around 2 million of the 9 million total annual deaths in that age category. Life-threatening pneumonias develop in young children everywhere in the world, but for every child who dies in a rich country, 2000 children die in poor countries, where infectious pneumonia kills more young children than malaria, AIDS, and measles combined.⁷ But that is not the end of the disaster. Deaths of children from pneumonia are tragic not only because of the young lives wiped out, but also because almost all are avoidable.⁸ Inexpensive vaccines, antibiotics and know-how to prevent and treat childhood pneumonia exist, but are not widely used in developing countries, even though studies by members of The Union clearly showed that mortality rates can be halved.⁹ The deplorable state of childhood pneumonia in poor countries is beginning to attract long overdue attention among non-governmental organizations with support from UNICEF and the WHO. On 2 November

2009, the Global Coalition Against Child Pneumonia held the first ever World Pneumonia Day, which will be strengthened during The Year of the Lung to increase awareness and mobilize support against the world's leading infectious killer of young children.

Tuberculosis

According to the 13th annual report on global TB control published by the WHO in 2009,¹⁰ there were an estimated 9.27 million incident cases of the disease in 2007, up marginally from the 9.24 million cases in 2006. Nevertheless, the slight increase attributable to population growth did not keep proportionate pace with the expansion of the population, which means that the per capita incidence of TB actually decreased, to 139 cases per 100 000 population, a finding that has occurred 3 years in a row since the incidence value peaked at 142/100 000 in 2004. Moreover, the case-detection rate of highly infectious cases, those whose sputum smears are positive by direct microscopy for acid-fast bacilli, continued its minimal upward annual crawl (to 63% in 2007) toward the target threshold of 70%, and estimates of both the global prevalence and mortality rates from TB showed further reductions. That sums up the good news, which is in fact impressive. But the bad news reveals how much remains to be done to control TB in certain parts of the world, and has exposed a long-standing shortcoming of laboratory capacity in resource-poor countries. First, in 2007, among the 9.27 million incident cases of TB in the world, 1.37 million (14.8%) were HIV-positive; in addition, 456 000 HIV-infected people died from TB, which accounts for 26% of the 1.76 million total deaths that year from TB (in both HIV-infected and non-infected people), and 25% of the estimated 2 million HIV-related deaths.¹⁰ Owing to reliable new data, the number of people coinfecting with HIV and TB was revised upward from previous estimates, and so was the relative risk of developing TB in HIV-positive persons: now a colossal 20.6 in countries where the prevalence of HIV infection in the general population exceeds 1%, which includes many countries in sub-Saharan Africa, where the coexistence of the two infections will serve to intensify the TB epidemic for years to come. Secondly, enormous concern accompanied the WHO's estimate of 500 000 cases of multidrug-resistant TB in 2007, of which as many as 19% (in one country) were extensively drug-resistant; more accurate data on the incidences of both MDR- and XDR-TB will depend on markedly improved laboratory capacities in high-burden resource-poor countries, where facilities for mycobacterial culture are currently scarce and sometimes completely lacking. The Union has focused on TB in low- and middle-income countries since it was founded in 1920, and will continue its strong commitment during The Year of the Lung and beyond.

Asthma

Asthma is, without a doubt, one of the world's most important chronic conditions, with some 300 million people said to be affected,¹¹ and it is unequivocally *the* most common chronic disease of childhood in the US and other industrialized countries. But asthma can be tricky and hard to get a handle on. Making a diagnosis of asthma in a wheezing child involves several stratagems and takes time: workup often includes a medical history, a physical examination, and a variety of special blood tests and breathing studies. The absence of a single objective test for asthma not only hampers clinical management, but it complicates assessment of prevalence in population studies. To surmount these hurdles, the International Study of Asthma and Allergies in Childhood (ISAAC) and the European Community Respiratory Health Survey (ECHRS) have developed standardized ways of documenting the burden of asthma in different countries.¹¹ Using ISAAC methodology to evaluate trends over time (5 to 10 years apart), investigators recently reported that the high and formerly rising prevalence of asthma symptoms in English language countries appears to have peaked and may even be declining; on the other hand, significant increases in prevalence were observed in several Latin American and Eastern European countries; finally, virtually all countries in which a very low prevalence was found during the first study (except India) had had an increase by the time of the second.¹² Death rates from asthma also vary from place to place and from one racial group to another,¹¹ but are unacceptably high wherever they exist. Asthma is a uniquely treatable disease: difficult at times, indeed, but no one should die of it. Excellent treatment guidelines are available, including those prepared by The Union for low- and middle-income countries. The global pandemic of asthma may have slowed in some countries but it is surging ahead in others; the reasons for these changes need to be sorted out. The Year of the Lung provides an excellent opportunity to remedy an urgent global health problem.

THE ROLE OF THE UNION

The Year of the Lung campaign was launched on 6 December 2009 at The Union's World Conference on Global Lung Health in Cancun, Mexico. The Union will work with its governmental, non-governmental and philanthropic partners to participate actively in this campaign, emphasizing its commitment to lung health through technical assistance, education and research. Educational and advocacy materials will be made available to our members and to the public throughout the year through different channels of communication, such as regularly scheduled World and Regional Conferences, manuals, our journal and all our electronic communication instruments.

The International Journal of Tuberculosis and Lung Disease

The Union's journal, the IJTLD, will also contribute to The Year of the Lung by publishing a special series of monthly articles on wide-ranging topics of interest and significance to our readers. Authors have been asked to summarize the current status of their topic, emphasize what is new and important and describe what to expect in the future. In addition to further details about the Big Five lung diseases, subjects that will be covered include poverty, air pollution, H1N1 influenza, and lung structure and function. Readers are urged to criticize, question and comment on various articles, which we plan to publish with the authors' responses in the correspondence section of subsequent issues.

CONCLUSION

For many readers, this introduction to The Year of the Lung will serve merely as a recital of already assimilated information; for others, new facts will have been added and old ones highlighted. For all members of the 'lung disease' community, the message is simple: real and worsening health problems threaten the people we serve. The Year of the Lung is—above all—to increase awareness about the gravity of lung disease; but it is also meant to serve as a wake-up call and to stir up some action. So tell your friends, talk to your fellow professionals, and write your political representatives: in other words, get involved and demand results.

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