



GLOBAL ALLIANCE AGAINST
CHRONIC RESPIRATORY DISEASES

14TH GARD GENERAL MEETING REPORT

OCTOBER 6-7, 2021

1300-1600 CEST

VIRTUAL

GARD Executive Committee

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ABBREVIATIONS

ALAT	Asociación Latino Americana De Tórax
APSR	Asian Pacific Society of Respiriology
ATS	American Thoracic Society
CHEST	The American College of Chest Physicians
COPD	Chronic Obstructive Pulmonary Disease
CRD	Chronic Respiratory Disease
EAACI	European Academy of Allergy and Clinical Immunology
ERS	European Respiratory Society
FIRS	Forum of the International Respiratory Societies
GARD	Global Alliance Against Chronic Respiratory Diseases
GINA	Global Initiative for Asthma
GOLD	Global Initiative for Chronic Obstructive Lung Disease
IPCRG	International Primary Care Respiratory Group
IUATLD	International Union Against Tuberculosis and Lung Disease
LMIC	Low-to-middle-income country
NCD	Noncommunicable Disease
WHO	World Health Organization
WLD	World Lung Day

EXECUTIVE SUMMARY

The 14th GARD General Meeting was held virtually on October 6-7, 2021. One hundred and thirty-four GARD colleagues attended this annual meeting via Zoom.

On Day-1, Dr. Arzu Yorgancioglu, the GARD Chair, gave an update on GARD followed by a specific forum with representative speakers from FIRS, GINA and GOLD highlighting strategies for working with LMIC and their contributions to GARD. The day concluded with breakout workshops on various topics (see program agenda).

On Day-2, Dr. Yorgancioglu put forward a GARD Declaration on the urgent need for clean air and called to action in support of the implementation of the new air quality guideline issued by the WHO on September 22, 2021 (<https://www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines>). WHO officials, Dr. Bente Mikkelsen, Director of NCD, and Dr. Sarah Rylance, Medical officer of CRDs, provided an overview of the WHO CRD priorities. As with Day-1, the meeting concluded with breakout workshops on various topics. During both days, 23 ePosters from GARD members were streamed during the meeting breaks.

The GARD General Assembly (for GARD members only) started on Day-2 after the General Meeting concluded. The Assembly was attended by 94 members who engaged in a discussion on efforts in increasing membership in LMIC, advocacy strategies, benchmarking network success and how GARD, as a WHO network, can work better with WHO to maximize our impact and move towards a common goal.

Meeting recordings, ePosters, PowerPoint presentations are now available on the GARD website (<https://gard-breathefreely.org/gard-gm/>).

DAY 1 – 6TH OCTOBER 2021

GARD Update

The meeting was joined by 134 participants via Zoom.

Dr. Arzu Yorgancıoğlu, Chair of GARD, opened the meeting welcoming attendees and gave an update on GARD. The 14th GARD General Meeting was held virtually because of the pandemic. After our in person meeting in 2019, we had a new governing body which will join forces in the respiratory community. In the Executive Committee, we have an Advisor to GARD who is also the Chair from FIRS representing all international respiratory societies. We also have GINA and GOLD representatives who bring us the most updated data as well as inform us the unmet needs in asthma and COPD. For Planning Committee we have Regional Groups in concordance with WHO Regions and Thematic groups covering all needs to be worked on. GARD is now a platform bringing together action on CRDs. In the first 3 months post the Beijing meeting, the GARD Executives focused in identifying leads for the Thematic and Regional Groups, which was finalized in January 2020.

The final report of the GARD 13th General Meeting (Beijing) has been sent to GARD members and was available on the GARD website as well. The presentation entitled “*The Global Alliance Against Chronic Respiratory Diseases: journey so far and way ahead*”, which was a “historical” story of GARD, was made by Arzu Yorgancıoğlu (chair of GARD)“ at the meeting and it was now published. [1]

The GARD membership list has been updated accordingly after an invitation was sent to all major respiratory societies. A message has also been sent to the WHO Regional offices with updates of GARD regional structures with updated SOPs and TORs.

The Beijing Call to Action was reformatted and published in the Journal of Thoracic Disease titled “*COVID-19 pandemic alert: time to focus on lung health-Beijing call to action for lung health promotion*”. [2] We were invited to highlight the role/impact of GARD at the EAACI 2020 and 2021 virtual meeting: “*GARD – A platform to bring together action on CRDs*“ and “*GARD 's joining efforts for respiratory community*”, respectively.

Thirty GARD colleagues co-authored a paper titled “*A Global Respiratory Perspective on the COVID-19 Pandemic: Commentary and Action Proposals*”, published in June 2020 in ERJ. [3] Published peer-reviewed papers authored by GARD members during COVID-19 were posted on our website and also highlighted in the GARD newsletters. In addition to GARD members' publication, the GARD website also has a COVID-19 dashboard that offer links to relevant resources. As of today, the GARD website has received over 1,587,401 hits.

Progress on GARD Demonstration projects (DP) has been updated and 4 new DP proposals have been reviewed and the final status will be posted on our website by the end of this year. An action plan has been requested from all GARD Thematic and Regional Groups and they are now being evaluated.

GARD hosted a COVID-19 webinar (*Chronic Respiratory Diseases and COVID-19, Brazil, China, Greece, Italy, Kyrgyzstan, Turkey*) in May, 2020 where over 100 global attendees participated. There were over 1,500 downloads of the recording of the workshop. In March, 2021, GARD held a second COVID-19 webinar titled “*Chronic Respiratory Diseases in the COVID era*”, featuring 3 topics (long-term effects of COVID-19, variants and vaccines and digital health) with world renowned expert speakers and panel members engaging in a discussion.

We have also contributed to the 2021 Global Asthma Report in related chapters and also participated in a stakeholder meeting to address the access to affordable WHO essential inhaled medicines for CRDs in LMICs. We have made a presentation to ERS Executive Committee about GARD and attended Interasma 2021 Meeting with a GARD presentation

In keeping with our tradition, we will announce a Call To Action at this year’s virtual GARD general meeting. We are making a declaration on *the urgent need for clean air in support of the implementation of the new air quality guideline* issued by the World Health Organization on September 22, 2021. [4] GARD will continue its efforts in joining respiratory community and we believe in preventing and controlling CRDs. Keeping these objectives on the global health agenda, will require the ongoing energies of all involved in the RESPIRATORY COMMUNITY.

1. The Global Alliance Against Chronic Respiratory Diseases: journey so far and way ahead. Yorgancioglu A, Khaltaev N, Bousquet J, Varghese C. Chin Med J (Engl). 2020 Jun 9. doi: 10.1097/CM9.0000000000000851

2. (COVID-19 pandemic alert: time to focus on lung health-Beijing call to action for lung health promotion. Journal of Thoracic Disease, Vol 12, No 6 (June 2020). doi: 10.21037/jtd-gard-20-002

3. “A Global Respiratory Perspective on the COVID-19 Pandemic: Commentary and Action Proposals.” Eur Respir J. 2020 Jun 25;2001704.

doi: 10.1183/13993003.01704-2020

4. WHO global air quality guidelines. <https://www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines>.

Strategies for Working with LMIC

This session was chaired by Dr. Alvaro Cruz with speakers from three global organizations: FIRS, GINA and GOLD.

Dr. Stephanie Levine, past-president of The Forum of International Respiratory Societies (FIRS) gave an overview of FIRS. The FIRS was established in 2001 by the international professional respiratory societies, the American College of Chest Physicians (CHEST), American Thoracic Society (ATS), Asian Pacific Society of Respiriology (APSR), Asociación Latino Americana De Tórax (ALAT), European Respiratory Society (ERS), International Union Against Tuberculosis and Lung Diseases (The Union), and Pan African Thoracic Society (PATS). The Global Initiative for Asthma (GINA), and the Global Initiative for Chronic Obstructive Lung Disease (GOLD) joined in 2017.

In total FIRS' organizations have >100,000 professional members working in the broad field of respiratory health. FIRS' professional organizations develop guidelines to help their members practice, and position papers to promote lung health policies. Leading experts of the societies present compelling scientific evidence and health perspectives to support these guidelines and positions. The reputation of the societies often carry a weighty influence on the practice of medicine. Each society has an annual meeting and, in aggregate, hold more than 100 regional and specialized meetings annually. Most new research in the field is presented at these conferences. More than 50,000 people attend these meetings yearly. The societies collectively publish > 17 journals that bring out more than 2000 articles per year. The articles present the latest research and are rigorously peer-reviewed to present a trustworthy global resource. The journals raise awareness of new findings and alert the public to lung health concerns.

FIRS promotes respiratory health worldwide through global advocacy and by working with global organizations representing the respiratory community including the WHO Global Alliance against Chronic Respiratory Diseases (GARD). FIRS is concerned with all factors relating to lung health but particularly those affecting the most people globally and ones that can provide the greatest improvement to respiratory health. It endorses the United Nations' Sustainable Development Goals, the functions and activity of the WHO, and many other organizations working to improve lung health. A major goal is to alert the world to the importance of lung health and the global impact of respiratory disease.

FIRS' major activity is global advocacy. FIRS' societies have a presence in essentially every country in the world, and their social media extends broadly to the public as well as the respiratory community. FIRS participates in many activities including the respiratory related World Days with an emphasis on World Lung Day (WLD). For WLD held on September 25th, 2021, the theme was Care for Your Lungs and covered tobacco (and vaping), vaccination, clean air and exercise. Preliminary results show that social media exposures were 2.9 thousand (an increase of 11%) and print media coverage were 224, (an increase of 359%). In addition, FIRS has been active in the COVID-19 response providing a webpage with information and links to society toolkits, and released a number of timely statements throughout the year in response to the pandemic. FIRS also participated in the

Pneumolight campaign, including the online event. In 2020, FIRS was invited to join GARD Executive Committee. FIRS was also invited to participate in a Union (IUATLD) initiative aimed at identifying barriers and solutions to affordable quality-assured medications for low to middle income countries (LMIC). On WLD, FIRS released the 3rd Edition of the The Global Impact of Respiratory Disease report. FIRS is now applying for “formal engagement” with WHO.

Dr. Louis-Philippe Boulet, Chair of the Global Initiative for Asthma (GINA) Board of Directors spoke about how GINA developed or contributed to initiatives aiming at improving asthma care in low to moderate income countries. This included a presentation of the various documents produced, the platforms developed to allow clinicians from many countries to provide feedback to GINA members, and other initiatives such as the “World Asthma Day”, its involvement in IUATLD projects and virtual exchanges with physicians from many countries.

Dr. David Halpin, Member of Global Initiative for Chronic Obstructive Lung Disease (GOLD) Board of Directors spoke about the fact that GOLD is self-funded through the sale of its products. The GOLD Report is updated annually on the basis of six-monthly reviews of the published literature on COPD. The 2021 Report includes references to the WHO minimum set of interventions for the diagnosis of COPD and management of exacerbations. To date, the 2021 Report web page has been visited over 600,000 times.

He said that GOLD is particularly concerned about the significant increase in burden of COPD in LMIC that will occur over coming years as a result of population growth, increasing life expectancy and increased smoking rates, particularly among teenagers. GOLD has identified a number of barriers to effective management of COPD in these countries. These include lack of awareness of COPD and its burden in LMIC among individuals, health professionals, governments and global organizations. There is also a lack of awareness or unwillingness to control risk factors for COPD including poor maternal nutrition, smoking during pregnancy, childhood exposure to indoor and outdoor air pollution, adolescent and adult smoking and occupational exposures. There is under- and late-diagnosis, often as a result of poor access to spirometry, but also because of lack of knowledge about COPD. There is late and ineffective treatment of COPD often as a result of underfunding, poor access to drugs with proven efficacy and safety, lack of awareness of evidence-based management guidelines and limited access to healthcare services.

GOLD has already begun to try to improve the global management of COPD by holding a Summit on the topic in 2018, by including references to WHO minimum set of interventions in the 2021 Report and by holding a dedicated session on “The Problem of COPD Care in Low- and Middle-income Countries” at its 2021 International Conference. It will also be holding a UK/ Africa Satellite Conference in early 2022 and is supporting data collection on availability and access to medication and spirometry in LMIC. GOLD believes that recommendations on the management of COPD should be universal and that separate recommendations should not be made for LMIC, rather GOLD and organizations such as GARD should work to ensure all therapies available to all patients.

DAY 2 – 7TH OCTOBER 2021

WHO CRD Priorities

Dr. Sarah Rylance, Medical Officer for Chronic Respiratory Diseases (CRDs) at WHO headquarters, gave a brief overview of WHO priorities, highlighting three areas where WHO is working to improving asthma and COPD care, as part of the 13th General Programme of Work:

- Assessing the burden of disease - led by the Surveillance, Monitoring and Reporting Unit within the NCD Department.
- Asthma and COPD prevention – activities relating to tobacco and air pollution exposure reduction are led by units within the Health Promotion Department. Also working with the Maternal, Newborn, Child and Adolescent Health Department, recognising the importance of a life course approach to lung health.
- Asthma and COPD management – led by the NCD Management Unit, working to improve access to effective asthma and COPD care through normative work, leadership and country support functions.

In order to advance this work, it is crucial to raise the profile of asthma and COPD on the global health agenda and to work with partners both within and outside of the health sector.

Dr. Bente Mikkelsen, Director of the NCD Department at WHO headquarters, echoed this message and emphasized the importance of multi-sectoral partnerships and links with professional societies, academic institutions and patient groups. These networks continue to play an important role in workstreams relating to other NCDs in the department and are essential for advancing our work on CRDs.

Raising awareness of asthma and COPD, and advocating for effective care across the globe is key to reducing morbidity and mortality. WHO looks to GARD members for their continued support to reach our common goal: “to reduce the global burden of chronic respiratory diseases”.

GARD GENERAL ASSEMBLY

The GARD General Assembly (for GARD members only) started on Day-2 after the General Meeting concluded. The Assembly was attended by 94 members who engaged in a discussion on efforts in increasing membership in LMIC, advocacy strategies, benchmarking network success and how GARD, as a WHO network, can work better with WHO to maximize our impact and move towards a common goal.

DECLARATION ON THE URGENT NEED FOR CLEAR AIR

On September 22, 2021, WHO issued the new air quality guideline (<https://www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines>). Dr. Giovanni Viegi motioned a declaration on the urgent need for clean air and called to action in support of the implementation. The declaration (Annex 2) was approved by the GARD General Assembly.

BREAKOUT WORKSHOPS

Participants of the meeting were invited to join 8 concurrent workshops. Given the time constraint, 5 of the workshops took place during the General Meeting and the other 3 were conducted on separate days after the meeting. The workshops covered a wide range of relevant topics:

- Lung Health and the Environment (co-chairs: Drs. A Cruz, G Viegi, B Samolinski)
- COVID and CRDs (co-chairs: Drs. Y Song, B Pigearias, YY Kim)
- Integrated Care Approaches in LMIC (co-chairs: T Sooronbaev, L Tuyet, F Mihaltan)
- Building Partnerships with Governments (co-chairs: A Yorgancıoğlu, G Marks, R Pawankar)
- Innovation in CRDs: Digital, Workforce, Diagnostics (co-chairs: J Bousquet, F Balli, L Harding)
- Priorities for Paediatric & Adolescent Lung Health (co-chairs: S Levine, J de Sousa, E Mantzouranis)
- Access to Inhalers in LMIC (co-chairs: D Halpin, S Williams, B Gemicioglu)
- GARD Countries: Sharing Good Practice (co-chairs: LP Boulet, M Erhola, T Vasankari, AE Sony)

Each workshop was chaired by 3 or more GARD members and discussion was focused on the significance and accomplishments, challenges/barriers, recommendations, solutions and actions. The summary of each of each of the workshop can be found in Annex 3.

ANNEXES

Annex 1. Meeting Program Agenda

Annex 2. Declaration on the Need for Clean Air

Annex 3. List of Breakout Workshop Summary

Annex 4. List of ePosters

Annex 5. List of Speakers

Annex 6. List of Participants

Annex 1. Meeting Program Agenda

14th GARD GENERAL MEETING PROGRAM AGENDA OCTOBER 6-7, 2021, CEST 1300-1600 (VIRTUAL)

WEDNESDDAY, OCTOBER 6, 2021 – GARD GENERAL MEETING DAY 1

TIME (CEST)	SESSIONS	CONTRIBUTORS
1300-1315	OPENING	
	Welcome	Sarah Rylance
	GARD Update	Arzu Yorgancioğlu
1315-1415	FIRS/GINA/GOLD	Chair: Alvaro Cruz
	Strategies for Working with LMIC	Stephanie Levine, Louis-Philippe Boulet and
1415-1430	Comfort Break & Allocation of Breakout Rooms	Streaming of ePosters
	Breakout Workshops	
1430-1530	1. Lung Health and the Environment	A Cruz, G Viegli, B Samolinski
	2. COVID and CRDs	Y Song, B Pigearias, YY Kim
	3. Integrated Care Approaches in LMIC	T Sooronbaev, L Tuyet, F Mihaltan
	4. Building Partnerships with Governments	A Yorgancioğlu, G Marks, R Pawankar
1530-1550	Reporting back (5 min per workshop group)	Chair: Yuanlin Song Workshop Rapporteurs
1550-1600	Concluding Remarks & Plan for Day 2	Arzu Yorgancioğlu Sarah Rylance

THURSDAY, OCTOBER 7, 2021 – GARD GENERAL MEETING DAY 2

TIME (CEST)	SESSIONS	CONTRIBUTORS
1300-1315	OPENING	
	Welcome	Arzu Yorgancioğlu
	WHO CRD Priorities	Bente Mikkelsen, Sarah Rylance
1315-1415	Breakout Workshops	
	1. Innovation in CRDs: Digital, Workforce, Diagnostics	J Bousquet, F Balli, L Harding
	2. Priorities for Paediatric & Adolescent Lung Health	S Levine, J de Sousa, E Mantzouranis
	3. Access to Inhalers in LMIC	D Halpin, S Williams, B Gemicioglu
	4. GARD Countries: Sharing Good Practice	LP Boulet, M Erhola, T Vasankari, AE Sony
1415-1435	Reporting back (5 min per workshop group)	Chair: Talant Sooronbaev Workshop Rapporteurs
1435-1440	Wrap Up of Open Meeting	Arzu Yorgancioğlu
1440-1450	Comfort Break	Streaming of ePosters
1450-1550	GARD General Assembly (Closed Session)	Chairs: Arzu Yorgancioğlu, Sarah Rylance
1550-1600	Concluding Remarks & Next steps	Arzu Yorgancioğlu Sarah Rylance

Annex 2. Declaration on the Need for Clean Air

ADOPTED BY THE PARTICIPANTS IN THE 14th GARD GENERAL MEETING (virtual) ON October 6-7, 2021, IN SUPPORT OF THE IMPLEMENTATION OF THE NEW AIR QUALITY GUIDELINES ISSUED BY THE WORLD HEALTH ORGANIZATION (WHO) ON SEPTEMBER 22, 2021

We, members of the Global Alliance against chronic Respiratory Diseases (GARD) [1], a voluntary alliance of medical societies, governmental organizations and patients' associations with WHO working towards a common vision to improve global lung health according to local needs, are extremely concerned for the health of million patients with chronic respiratory diseases (CRD) and other chronic non communicable disorders (NCD) who continue to be exposed to dangerous concentrations of air pollutants.

According to the data published in 2020 by the Global Burden of Disease study [2], outdoor and household air pollution together accounted for approximately 12% of all deaths in 2019; air pollution currently ranks fourth among major risk factors for global disease and mortality, behind tobacco, hypertension, and dietary risks in men, and behind hypertension, dietary risks and high fasting plasma glucose in women.

Indeed, higher deprivation indices and low economic position are usually linked with higher levels of pollutants [3], thus the burden of higher pollutants falls disproportionately on different social groups.

GARD has a long-standing history of support for clean air and the promotion for prevention and control of CRD. In 2010, GARD identified a prioritized research agenda for prevention and control of chronic respiratory diseases [4], which included indoor and outdoor air pollution within the early determinants of CRD.

In 2019, the abatement of air pollution and smoking were included as preliminary actions to the implementation of the "Nature Step to Respiratory Health" [5], the overarching theme of the 12th GARD General Meeting (Helsinki, August 2018).

In 2020, we published the 'Beijing Call to Action for Lung Health Promotion', adopted at the 13th GARD General Meeting [6]. The Section "Fostering multisectoral action to reduce risk factors for CRDS" included the task of promoting intersectoral action to address indoor and outdoor air pollution, by engaging with a range of other sectors and identifying clean-energy strategies to shift away from kerosene, biomass and biofuel burning, and to reduce CO2 emissions.

Further, a group of active leaders of organizations comprising the network of the GARD published a paper on "A global respiratory perspective on the COVID-19 pandemic: commentary and action proposals" [7]. In the section "Proposed actions at the local and community level", it was strongly recommended to partner with respective government agencies to enforce the ongoing fight against air pollution and climate change.

Recently, on September 22, 2021, WHO has published the new Air Quality Guidelines (AQG) [8], which are based on convincing scientific evidence about the harms caused by exposure to low levels of conventional air

pollutants. The new WHO AQG for both long - and short-term exposure in relation to critical health outcomes indicate levels which are largely lower than the previous WHO AQG published sixteen years ago: e.g. 5 µg/m³ for annual PM_{2.5} and 15 µg/m³ for 24-hour PM_{2.5}; 10 µg/m³ for annual NO₂ and 25 µg/m³ for 24-hour NO₂ .

Thus, in keeping with the GARD motto “A WORLD WHERE ALL PEOPLE CAN BREATHE FREELY” and in line with the United Nation Sustainable development Goals [9] (7: Affordable and clean Energy; 10: Reduced inequalities; 11: Sustainable cities and communities; 13: Climate action), we urge national and supranational institutions to adopt effective policies to abate air pollution sources and we join the over one hundred scientific societies and patient representative organizations who have signed the declaration prepared by the European Respiratory Society (ERS) and the International Society for Environmental Epidemiology (ISEE) [10] to support the reinforcement of the new AQG issued by WHO.

RESPIRATORY HEALTH means ONE HEALTH and PLANETARY HEALTH

REFERENCES

1. Bousquet J, Dahl R, Khaltayev N. Global Alliance against Chronic Respiratory Diseases. *Eur Respir J*. 2007 Feb;29(2):233-9. doi: 10.1183/09031936.00138606.
2. Murray CJL, Aravkin AY, Zheng P, Abbafati C, Abbas KM, Abbasi-Kangevari M et al. Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet*. 2020; 396 (10258): 1223–1249. DOI: 10.1016/S0140-6736(20)30752-2.
3. Fairburn J, Schüle SA, Dreger S, Karla Hilz L, Bolte G. Social Inequalities in Exposure to Ambient Air Pollution: A Systematic Review in the WHO European Region. *Int J Environ Res Public Health*. 2019 Aug 28;16(17):3127. doi: 10.3390/ijerph16173127.
4. Bousquet J, Kiley J, Bateman ED, Viegi G, Cruz AA, Khaltayev N, et al. Prioritised research agenda for prevention and control of chronic respiratory diseases. *Eur Respir J*. 2010 Nov;36(5):995-1001. doi: 10.1183/09031936.00012610.
5. Haahtela T, von Hertzen L, Anto JM, Bai C, Baigenzhin A, Bateman ED, Behera D, et al. Helsinki by nature: The Nature Step to Respiratory Health. *Clin Transl Allergy*. 2019 Oct 30;9:57. doi: 10.1186/s13601-019-0295-2.
6. Global Alliance of Chronic Respiratory Diseases (GARD). COVID-19 pandemic alert: time to focus on lung health-Beijing call to action for lung health promotion. *J Thorac Dis*. 2020. PMID: 32642245.
7. To T, Viegi G, Cruz A, Taborda-Barata L, Asher I, Behera D, et al. A global respiratory perspective on the COVID-19 pandemic: commentary and action proposals. *Eur Respir J*. 2020 Jul 23;56(1):2001704. doi: 10.1183/13993003.01704-2020.
8. WHO global air quality guidelines. <https://www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines>.
9. United Nations. The 17 sustainable development goals. <https://sdgs.un.org/goals>.
10. Hoffmann B, Boogaard H, de Nazelle A, Andersen ZJ, Abramson M, Brauer M, et al. WHO Air Quality Guidelines 2021–Aiming for Healthier Air for all: A Joint Statement by Medical, Public Health, Scientific Societies and Patient Representative Organisations. COMMENTARY. *Int J Public Health*, 23 September 2021. <https://doi.org/10.3389/ijph.2021.1604465>

Annex 3. List of Workshop Summaries

The objectives of the workshop were to quantify/describe the current problems with access to inhaled medicines, discuss the importance of improving access, document what GARD countries and affiliates have accomplished to improve access, identify challenges and barriers, suggest potential and feasible solutions/action plans to combat these challenges.

1. Lung Health and the Environment
2. COVID and CRDs
3. Integrated Care Approaches in LMIC
4. Building Partnerships with Governments
5. Innovation in Chronic Respiratory Diseases
6. Priorities for Paediatric & Adolescent Lung Health
7. Improving Access to Inhaled Medicines for Chronic Respiratory Diseases
8. GARD Countries: Sharing Good Practice

1. LUNG HEALTH AND THE ENVIRONMENT

Giovanni Viegi¹, Boleslaw Samoliński², Alvaro A. Cruz³

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SIGNIFICANCE & ACCOMPLISHMENTS

According to the Global Burden of Disease study, outdoor and household air pollution accounted for approximately 12% of all deaths in 2019; air pollution ranks fourth among major risk factors for global disease and mortality, behind tobacco, hypertension, and dietary risks in men, and behind hypertension, dietary risks and high fasting plasma glucose in women.

GARD has a long-standing history of support for clean air and the promotion for prevention and control of CRD: in 2010, the prioritized research agenda for prevention and control of chronic respiratory diseases, including indoor and outdoor air pollution within the early determinants of CRD; in 2019, the preliminary actions (abatement of air pollution and smoking) to the implementation of the Helsinki “Nature Step to Respiratory Health”; in the 2020 ‘Beijing Call to Action for Lung Health Promotion’, the task of promoting intersectoral action to address indoor and outdoor air pollution, by engaging with a range of other sectors and identifying clean-energy strategies to shift away from kerosene, biomass and biofuel burning, and to reduce CO₂ emissions.

At this meeting, it was shown that there is strong relationship between air pollution and COVID19 infection. Exposure to air pollutants may promote viral entry, replication, and assembly, and activate proinflammatory transcription factors, resulting in enhanced local inflammation, as well as it reduces mucociliary clearance and decreases levels of tight junction proteins, promoting epithelial permeability, and it produces reactive oxygen species.

2.6 billion people cook using polluting open fires or simple stoves fueled by kerosene, biomass (wood, animal dung and crop waste) and coal. Each year, 4 million people die prematurely from illness attributable to household air pollution. Household air pollution causes NCDs including stroke, ischaemic heart disease, COPD and lung cancer. Half of deaths due to pneumonia among children under 5 years of age are caused by particulate matter (soot) inhaled from household air pollution. Dual exposure to smoking and household air pollution is associated with an increased risk of adult severe asthma in Brazil. The WHO’s Response has been: Guideline for indoor air quality - household fuel combustion; Clean Household Energy Solutions Toolkit (CHEST); Leadership and advocacy in the health, energy and climate community.

CHALLENGES/BARRIERS

Many stakeholders resist to the implementation of preventive policies for respiratory health. GARD countries should increase their advocacy initiatives.

RECOMMENDATIONS, SOLUTIONS AND ACTIONS

- The 1st draft of “Update on adverse respiratory effects of outdoor air pollution” in “*AIR POLLUTION AND HEALTH*” Series for the Journal PULMONOLOGY, edited by Giovanni Viegi and Luis Taborda Barata, is almost ready. There are contributions from GARD countries: Angola, Brazil, Canada, Iran, Italy, Mozambique, Portugal.
- A mini-series on «Air pollution and climate change» for the International Journal of Tuberculosis and Lung Diseases, edited by Isabella Annesi-Maesano, has just been launched.
- On September 22, 2021, WHO has published the new Air Quality Guidelines (AQG), indicating largely lower levels than the 2005 WHO AQG.
- We have drafted a “Declaration for clean air” to support the extensive application of such new AQG, approved by the participants in the 14th GARD General Meeting.

2. COVID AND CRDS

You-Young Kim¹, Bernard Pigearias², Yuanlin Song³

1. Seoul National University College of Medicine; Korea Asthma Allergy Foundation; Asia Pacific Association of Allergy Asthma and Clinical Immunology (APAAACI); 2. Société de Pneumologie de Langue Française (SPLF); Espace Francophone de Pneumologie (EFP) Comité de pilotage; 3. Department of Pulmonary and Critical Care Medicine, Zhongshan Hospital, Fudan University; Shanghai key laboratory of lung inflammation and injury; Shanghai Respiratory Research Institute.

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SIGNIFICANCE & ACCOMPLISHMENTS

In this workshop, we invited two speakers, Prof. You-Young Kim and Dr. Weijie Guan to discuss two topics related to COVID-19 and CRD. Prof. Kim discussed about decoupling of vaccination and herd immunity in COVID-19. COVID-19 vaccination showed efficacy on controlling of SARS-Cov-2 transmission and reducing severity of COVID-19 even for delta variants, while the vaccination rate is very different among countries. Herd immunity has been implemented as one of the strategies against SARS-Cov-2 spreading, it's impact is still under evaluation based on vaccine efficacy and reproduction number (R) of SARS-Cov-2. Required herd immunity level need to be 63-90% given vaccination efficacy 90-100% with R 0.5-0.99. Dr. Guan presented COVID-19 and CRD and he showed high mortality in COPD and asthma patients who had COVID-19. COPD patients have increased overexpression of ACE-2 receptor in airway epithelium due to smoking while in asthma patients, the ACE-2 receptor level tend to be lower. ICS use was associated with decreased mortality only for patients aged 50+ years with asthma. Greater emphasis on the long-term outcome of COVID-19 patients with CRD is needed.

CHALLENGES/BARRIERS

There were significant disparities among vaccination rate worldwide, which raise the possibility of distributing vaccine through justified mechanism in order to control SARS-Cov-2 spreading globally. There are multiple barriers to get vaccination particularly in low-income countries such as price of vaccines and national health authority for preparing vaccination system i.e., (Ultra) cold chain infrastructure for transportation & storage of vaccines, place of vaccination, and health personal to handle vaccination. Barriers to achieve herd immunity are willingness to get vaccination to COVID-19, serious ADR (adverse drug reactions) to vaccines e.g., VITT (vaccine-induced immune thrombotic thrombocytopenia) to Oxford/AstraZeneca vaccine or myocarditis to Pfizer vaccine and emergence of COVID-19 variant breakthrough infection. CRD patients are vulnerable to SARS-Cov-2 due to high susceptibility and high mortality.

RECOMMENDATIONS, SOLUTIONS AND ACTIONS

To increase vaccine production and possible donation/price reduction may help some countries to achieve certain level of vaccination, trying to reduce or stop SARS-Cov-2 transmission. An international authority like WHO or UN need to take an action to build up international rules for inequities for COVID-19 and future similar pandemic. WHO have a good example of worldwide elimination program against to infectious disease that is Global Polio Eradication Initiative which initiated by Rotary International with WHO, UNICEF, US CDC in 1988 and later Bill & Melinda Gates Foundation and Gavi (The Vaccine Alliance) joined. Polio pandemic countries in the world was 125 and now only 2 countries remain. A hidden contributor who made the program possible was Sabin who developed Sabin vaccine and gave up patent right and royalty of his vaccine. It seems to be very hard to achieve herd immunity by vaccination because of breakthrough infection caused by emerging variants such as delta. Booster shot and continued mask wearing will be needed. The COVID-19 virus will not go away and we have to learn how to live with COVID-19 (like influenza virus). Another option for COVID-19 free is the development of antiviral medicine for treatment of COVID-19 (like Tamiflu for influenza virus). For patients with CRD, they need to have more active and positive protection besides vaccination. Social distance, wearing mask and hand washing, regular use of bronchodilators is important for CRD patients to prevent catching COVID-19 and reduce mortality. A large cohort of COVID-19 patients with CRD was followed for their long-term outcome.

3. INTEGRATED CARE APPROACHES IN LMIC

Talant Sooronbaev¹, Le Thi Tuyet Lan², Florin Michaltan³

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SIGNIFICANCE & ACCOMPLISHMENTS

The priority and most common topics for primary health care in LMIC are NCDs, TB, acute respiratory infections, mental health issues, Covid-19 and other challenges. That's why Integrated care approaches are very important for primary health care in LMIC countries especially in Covid-19 pandemic conditions. Many GARD countries / affiliates have good experience with the implementation and use of integrated care approaches such as PAL, PEN and PACK. However, the Covid-19 pandemic demonstrates the need for improved tools and approaches for integrated care. In this context, an important question is - how we can help GPs and nurses to have an optimal and effective tool for integrated care, especially in the Covid-19 pandemic condition

CHALLENGES/BARRIERS

Noteworthy are the following challenges or barriers in integrated care approaches in LIMC:

- Unfortunately, in many countries, integrated care approaches are not used, or integrated care approaches are used only for a limited group of diseases, that is, service for multimorbidity conditions is not provided.
- Integrated care approaches were particularly difficult in the Covid-19 pandemic conditions
- In many LMIC countries there are not enough GPs and they have a lot of hard work for caring of patients
- Insufficient role and responsibility of nurses for integrated care approaches of patients, and they are not actively involved. At the same time, there are many nurses in LMIC countries.
- Pharmacists not actively involved for integrated care approaches
- Gaps and lack of rehabilitation programs
- The issues of primary prevention and control of modified risk factors are still a serious problem
-

RECOMMENDATIONS, SOLUTIONS AND ACTIONS

The following potential and feasible solutions / action plans are proposed to improve integrated care in LIMC:

- Survey of the situation in LIMC for integrated care approaches including the Covid-19 pandemic conditions
- Create a GARD working group to conduct survey and propose an optimal model (tool) for improving integrated care approaches in LIMC

4. BUILDING PARTNERSHIPS WITH GOVERNMENTS

Guy Marks¹⁻², Arzu Yorgancıoğlu³, Ruby Pawankar⁴⁻⁵

1. University of New South Wales, Sydney, Australia; 2. International Union Against Tuberculosis and Lung Disease (The Union); 3. Respiratory Medicine, ATSF, FERS, Celal Bayar University Medical Faculty, Department of Pulmonology; 4. Asia Pacific Association of Allergy Asthma and Clinical Immunology; 5. Division of Allergy, Department of Pediatrics, Nippon Medical School, Tokyo, Japan

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Our working group sought to identify barriers and facilitators for civil society organizations achieving government action in the following fields:

1. Engagement with government on a strategy for respiratory health
2. Access to effective medicines from chronic lung disease (inhalers)
3. Commitment to MPOWER / FCTC for tobacco control
4. Action to improve air quality
5. Provision of other care for patients with chronic respiratory disease (rehab, oxygen)
6. Retaining focus on chronic respiratory disease in the context of the pandemic

We had a wide-ranging discussion with a small group of participants. It was acknowledged that experiences were very diverse influenced by the political context, the extent of engagement of both health professionals and patient representatives and the nature of the health care system in countries. We acknowledged that a more systematic evaluation of these questions is required, in specific contexts

5. INNOVATION IN CHRONIC RESPIRATORY DISEASES

Fabio Balli^{1,2}, **Jean Bousquet**³, **Letitia Harding**⁴

1. Breathing Games Association, Switzerland; 2. Concordia University, Canada; ³MACVIA, France; ⁴Asthma and Respiratory Foundation, New Zealand
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CHALLENGES, BARRIERS

- a) Bridging the gap between medical guidelines and patients' practices.¹
- b) Reducing political and economical barriers to health to improve access and adherence to medical care. Today, six humans in ten have no access to medical care or do not adhere to it.²

SIGNIFICANCE, ACCOMPLISHMENTS

- a) MASK-air is a global programme to develop integrated care pathways for airway diseases, in particular rhinitis and asthma. The MASK-air app helps people affected with rhinitis or asthma monitor their symptoms (allergy diary) to better enjoy their life. The six-year-old program is free of cost and available in 18 languages, and supported by 130 centers in 28 countries. It evaluates the gap between GRADE guidelines and the real-life situation of 40,000 patients. A next step is to integrate IT tools to promote physical activity, adequate nutrition, and integrate biodiversity information such as the impact of air pollution (POLLAR programme) to sustain planetary health.
- b) 15 projects communities can adapt, repair, and reproduce for low-cost medical care (libre and open-source tech). These initiatives show how we can rapidly achieve collective health by shifting from competitive models creating dependency (health as a business) towards solidarity-driven models building communal capacity (health as commons). Such initiatives value open networks of interdisciplinary contributors (peer production); who iteratively co-create and document projects (agile development) that can be freely used, repaired, studied, reproduced and adapted by communities (libre and open-source licenses) at fair prices or no cost. As resources are mutualized to avoid redundancies, costs can be cut by ten to hundred times in comparison to IP-driven models. Such commons also foster local capacity building, as various communities can take responsibility to validate, produce and distribute the projects (crowd/peer production).²

RECOMMENDATIONS, SOLUTIONS, ACTIONS

Collecting and sharing open science innovations and open-source commons in an open access repository on the GARD website. Enabling members as well as interested persons to contribute to this repository by submitting new projects via a simple form. New proposals would be immediately available with "in review" status, until they are reviewed and validated by three members knowledgeable in open science and commons.

- a) Adopt the MASK-air approach to other contexts.
- b) Integrate open-source as an ethical requirement in medical research methods and health policies; fund and build capacity for community-driven, open-source innovation, especially in regard to access to regulation and monitoring; fund and build capacity for distributed manufacturing and distribution (crowd/peer production).

1. Bousquet J, Balli F, Harding L. Innovation in chronic respiratory diseases: biodiversity and commons – WHO GARD workshop [video]. General meeting of the Global Alliance against chronic Respiratory Diseases 2020-2021. Zenodo 2021. <https://doi.org/10.5281/zenodo.5554657> or <https://youtu.be/59VVyA2X3z0>
2. Balli F, Ibbotson R, Chhabra V, Pimentel JP, Suturin V, Falcon L, Timm-Bottos J, Kellner E, Menon J, Bechard N, Matringe M, & le Couedic C. Open-source respiratory health commons. 15 projects communities can adapt, repair, reproduce for low cost medical care (libre and open-source tech). General meeting of the Global Alliance against chronic Respiratory Diseases 2020-2021. Zenodo 2021. <https://doi.org/10.5281/zenodo.5590021>

6. PRIORITIES FOR PAEDIATRIC AND ADOLESCENT LUNG HEALTH

Stephanie M. Levine MD¹; Eva Mantzouranis MD, PhD²; Jaime Correia de Sousa MD, MSc, PhD³

1. Professor of Medicine, Division of Pulmonary and Critical Care Diseases, UT Health-San Antonio and the South Texas Veterans Health Care System, San Antonio, TX, USA, Immediate Past-President- FIRS and the American College of Chest Physicians (CHEST); 2. Professor Emeritus of Pediatrics, University of Crete, Head of Allergy, Pulmonary, Immunology, Children Hospital Mitera, Athens, Greece; 3. Family physician, International Primary Care Respiratory Group, Affiliate Professor, School of Medicine, Minho University, Portugal.

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SIGNIFICANCE & ACCOMPLISHMENTS

Our group focused on asthma, the most common chronic disease in children and adolescents, and a major area for opportunity in paediatric and adolescent lung health. We recognize that GARD countries and affiliates have accomplished little to date in this area. Our goals are to decrease acute asthma exacerbations (AEs) resulting in emergency department visits and hospitalizations in children and adolescents. Decreased AEs and improved asthma care will result in better asthma control, and lower transition of childhood into adult asthma and obstructive lung disease.

CHALLENGES/BARRIERS

The group identified many challenges and barriers in this area. Some of these involve the patients and caregivers. These include a lack of education about recognition of symptoms, a lack of understanding about AEs and how to prevent and treat them, not having or not adhering to a personal written asthma action plan for treatment, a general lack of education about general and personal triggers and risk factors, and poor understanding of the medications and/or the regimen. In addition, many think of asthma as a stigma. We need to educate on how the avoidance of AEs and good asthma control leads to better lung function and health. In terms of the medications themselves, education is needed on chronic management such as less reliance on short acting beta-agonist (SABA) agents and more emphasis on controller medication such as inhaled corticosteroids. We also emphasized one of the universal issues GARD is trying to address, which is limited access to inhaler medications in general. In the provider realm, we identified differences as to who manages asthma care and that this can vary by country including primary care providers, a team of family doctors and primary care nurses, family medicine providers, pediatricians, pulmonologists, allergists, and nurses. Other provider issues include when to refer to pulmonary or allergy, and how to transition from adolescent to adult management.

RECOMMENDATIONS, SOLUTIONS AND ACTIONS

The group suggested the following potential solutions and actions to combat challenges in this area. Some of these ideas included: educational animation, print animated materials (e.g., a small picture booklet on asthma addressing the educational gaps above), animation videos, and game based educational materials. Other ideas included education via social media. Clinicians should look at the guidelines differently and our role may be in following through to implementation. Regardless of the media chosen, it will be important to emphasize the appropriate target audience, including children and caretakers for the younger patients, and adolescents. An idea was raised to make this deliverable and created in a peer-to-peer format. We also recognized the importance of regional applicability considering resource limited settings and disparities. Dissemination could be through schools, social media and internet. A suggestion was made to collaborate with GARD patient organization groups to better co-create and design materials with a mixed novel approach to educational games, print education, and social media, the latter using social media marketing. To communicate the above key messages to reach and empower our target audiences, we could involve, where applicable, the Ministry of Health of GARD countries.

7. IMPROVING ACCESS TO INHALED MEDICINES FOR CHRONIC RESPIRATORY DISEASES

(CRDs)

Bilun Gemicioglu¹, David Halpin² and Siân Williams³

1. Istanbul University-Cerrahpaşa, Cerrahpaşa Faculty of Medicine, Department of Pulmonary Diseases; 2. University of Exeter Medical School, Department of Respiratory Medicine & Global Initiative for Chronic Obstructive Lung Diseases (GOLD); 3. International Primary Care Respiratory Group
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ACCESS

We used the USAID definition of “Access” that includes affordability, (cultural) acceptability, (geographical) accessibility, and availability. There was a wide consensus that guideline-recommended inhaled medicines are not equally available across the world, that despite advocacy on this topic over the last 15 years there had been insufficient action. Therefore, now was the time to act to meet the Sustainable Development Health Goals of Universal Health Coverage and a reduction in premature mortality from CRDs.

A poll conducted in advance of the meeting about availability included few low-income countries, so the results were not representative of the wider picture. In the workshop, availability for ICS was reported to be variable. The study of Babar et al also demonstrated that the variable availability of ICS and SABA in 52 low- and middle-income countries (LMIC) was very concerning.

BARRIERS

The findings from the poll suggested that on the demand-side, the three most important barriers globally were inappropriate policy and policy that did not prioritize CRDs; inadequate financing of medicines; and inadequate human resources. During discussion in the workshop, additional supply-side barriers included weak regulatory systems allowing poor quality generics to be supplied and a lack of consistency of supply, often at too low doses which was confusing for patients and prescribers. Therefore, an urgent need for new models of manufacture and procurement was expressed. In addition, the variation in diagnosis quality was seen as a barrier, as well as unwarranted variation in the quality of private pharmacy dispensing and the challenges in standardizing this. On the demand side, participants cited low public and patient awareness of evidence-based treatment and the lack of programmatic management as key barriers. Until CRD programmes were established as they had been for some other conditions with central procurement of essential inhaled medicines, there would be inadequate accessibility.

SOLUTIONS

Turkey was cited as an example of a country that has improved access through a number of measures. In terms of governance, there is mandatory social or private security of health for everyone. In terms of financing, Turkey has the lowest price in Europe for imported drugs. To increase supply further, more Turkish pharmaceutical companies now produce a wide range of inhaler drugs. To improve cultural acceptability, GARD Turkey prepared educational material for patients, GPs and pharmacists and orchestrated media and social media activities. In terms of geographical accessibility, the government has invested in the provision of physicians, nurses, primary health centers, pharmacies and pharmacists across the country. This is underpinned by a good regulatory system for prescribing, dispensing, and safe supply of inhalers.

RECOMMENDATIONS

Solutions will vary from one country to another. However, participants supported cross-departmental working between the NCD and Access to Medicines departments at WHO; involving all stakeholders including industry (branded and generic) in planning and delivering the improvements; and learning from countries where the scope of practice of pharmacists and nurses has increased, and where there are effective quality control mechanisms.

8. GARD COUNTRIES: SHARING GOOD PRACTICE

Boulet Louis-Philippe¹, Elsony Asma², Erhola Marina³, Vasankari Tuula⁴

1. Quebec Heart and Lung Institute, Laval University, Québec, Canada; 2. Epidemiological Laboratory (Epi-Lab) for Public Health, Research and Development, Khartoum Sudan; 3. Päijät-Häme Joint-Authority for Health and Wellbeing, Lahti Finland; 4. Finnish Lung Health Association, Helsinki, Finland; Faculty of Medicine, Department of Pulmonary Diseases and Clinical Allergology, University of Turku, Turku, Finland
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SIGNIFICANCE & ACCOMPLISHMENTS

Sharing good practices is of major importance for GARD members. Although problems may differ between countries depending, for example, of the income level, contribution of disease-specific risk factors and current treatment systems, exchanges of shared knowledge and information on evaluated practices could also be used by other countries and regions. The focus of this workshop was mainly to identify the challenges to optimal practice and discuss potential solutions, from the input of participating countries and regions. While normative guidance and frameworks for CRDs exist globally, however, uptake by countries of these global policies remains suboptimal with few exceptions, particularly in LMICs. A pre-workshop survey was performed to facilitate the workshop.

CHALLENGES/BARRIERS

As the diagnostic and treatment of major respiratory diseases such as asthma and COPD have improved in the last decades, especially in high income countries, mortality and morbidity have decreased. However, obstructive pulmonary diseases remain a major disease-related human and socioeconomic burden. Moreover, the load of respiratory diseases related symptoms in primary health care is substantial. Around 30 per cent of all primary health care visits are contributed to symptoms that can be related to respiratory diseases. It is crucial that health workers at all levels have adequate knowledge and skills for case-management of respiratory diseases. Keeping respiratory diseases on the agenda of ministries of health, national decision makers and at political level is required although it might need extra effort. Furthermore, patients easily adapt to their symptoms and decreased performance level and may tolerate poor control of their disease. Patient education and counselling is often not provided, and patient's self-management skills and regular follow-up are often deficient in primary health care. In low- and middle-income countries availability of diagnostic tools and treatments is a problem. Country specific adaptation of the internationally accepted case-management protocols might sometimes be needed. Climate changes and pollution will very likely cause more respiratory disease burden in the future. Pandemics and epidemics caused by respiratory viruses are a threat to health security, particularly in patients with respiratory conditions. In addition, the prevalence of obesity contributes not only to asthma severity but to other diseases such as sleep apnea and is among major causes of morbidity.

RECOMMENDATIONS, SOLUTIONS AND ACTIONS

Earlier disease-specific programmes, but also symptom-oriented strategies such as the PAL (Practical Approach for Lung Health), have showed good results, starting from TB programs as an example, can be shared, adapted and updated. GARD and other stakeholders could help provide remote training for health care professionals and influence the governments for provision of at least basic needs for medication and equipment for low- and middle-income countries. Self-management of patients is crucial, and applications specifically developed for this purpose should be utilized. The use of applications should however not replace traditional patient education, and contacts with the treatment team is essential.

A major conclusion from this workshop was to suggest the development of a toolkit for GARD countries to support improvements in political and community awareness, patient education, training of health care professionals and sharing experience/expertise and knowledge. It could include examples of earlier national/regional programmes and current guidelines which have proven effective, in addition to training and other types of modules in addition to examples of patient education. Documents and programmes from GARD collaborating groups and societies could be advertised in this virtual toolbox.

Annex 4. List of ePosters

LIST OF EPOSTERS

ePosters can be viewed here: [BIT.LY/GARD_GM2021_EPOSTER](https://bit.ly/GARD_GM2021_EPOSTER)

THEME 1 - LUNG HEALTH AND THE ENVIRONMENT

Title	Authors
1. Air Pollution and Climate Change, Elements for a national prevention strategy	Daniela Galeone, Fabrizio Anatra, Sonia Mele Ministry of Health - Italy - (on behalf of GARD-Italy)
2. Lung Health and the Environment	B Pigearias ^o EFP Nice, T Maglakelidze ^o GRA Tbilisi, F Mihaltan SRP Bucarest, J Domagala, PPF Varsovie, R Collomp CHU Nice, D Charpin APPA Marseille, F Soyez SPLF Paris, C Raheison-Semjen SPLF Paris
3. NATURE STEP TO HEALTH - a Finnish GARD Initiative	T. Haahtela, A. Vuori, M. Laine, M. Prass, T. Kangas, S. Paananen, R M. Hämäläinen, M M. Salomaa, and M. Erhola. Lahti, Finland
4. COPD Mortality among Brazilians States with and without Medical Precision Protocol Treatment	Nery, T; Martins, SR; INCOR HCFMUSP BRAZIL
5. Chronic Respiratory Disease Prevention: Mexico and Latin America - Interventions on Air Pollution and CRD	Sandra Nora Gonzalez-Diaz, Anahi Yañez, Ana Stok, GANOA, Regional Center of Allergy and Clinical Immunology of the University Hospital Monterrey, Mexico

THEME 2 - COVID AND CRDs

Title	Authors
6. Changes in the Behaviors Among Family Members of Patients with Severe COVID-19	Sadia Sultana, Kazi Saifuddin Bennoor – BLF, Bangladesh
7. IPCRG-Supporting Primary Care	Sian Williams, Noel Baxter, IPCRG
8. Impact of COVID-19 on the Approach to Asthma and COPD in Portugal	Luís Taborda Barata, José Rosado Pinto, Elisabete Melo Gomes, Cristina Bárbara
9. Challenges in Management of CRDs in the COVID-19 era	Roxana M. Nemes, Ruxandra Ulmeanu, Florin D. Mihaltan, Ramona E. Nedelcu - ROMANIA / Romanian Society of Pneumology (SRP)
10. Switching from an Asthma Facility into a COVID-19 Clinical Research Center in Brazil	Martti Antila; Rafael Stelmach; Angela Honda – FUNDAÇÃO PROAR – BRAZIL

11. COVID-ASTHMA- COPD- ACOS	Jorge A. Quel, MD, EFAAAAI, EFACAAI; J. Reyes, Y. Alvarez, USA
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THEME 3 - INTEGRATED CARE APPROACHES AND GOOD PRACTICES

Title	Authors
12. Feasibility of a Pulmonary Rehabilitation (PR) Programme for Symptomatic COPD Patients in Georgia: a randomized controlled trial (RCT) from the Breathe Well Group	Maglakelidze Mariam, Maglakelidze Tamaz, Breathe Well Group, University of Birmingham and Georgian Respiratory Association
13. Turkey National Spirometry Standardization Program	Gemicioğlu B*, Köktürk N, Ekinci B, Altunay Özkan Z and GARD Turkey Executive Committee, GARD Turkey Working Groups, Republic of Turkey Ministry of Health, Turkish Thoracic Society Working Groups, Yorgancıoğlu A. *Istanbul University-Cerrahpaşa, Cerrahpaşa Faculty of Medicine
14. Improving of Educational Programs for Primary Care Workers: A Focus on Communication with Patients	Stanislav Kotlyarov – Ryazan State Medical University – Russian Federation
15. GARD Activities 2020/2021 in Vietnam	Department of Medical Services Administration, Ministry of Health; Respiratory Care Center, University Medical Center; Society of Asthma, Allergy and Clinical Immunology HCMC Vietnam Respiratory Society
16. Lung Cancer Screening in Brazil	Ricardo Sales Dos Santos; Juliana Franceschini; Álvaro Cruz; Propulmão Hospital Israelita Albert Einstein / Senai Cimatec University Center Brazil; Proar Foundation Brazil
17. ProAR Foundation and GARD Brazil, a Productive Country Level Alliance	Paulo Camargos, Juliana Franceschini PROAR FOUNDATION BRAZIL

THEME 4 - INNOVATION IN CRDS: DIGITAL, WORKFORCE, DIAGNOSTICS

Title	Authors
18. Polish Society of Allergology During COVID-19 and post-COVID-19 era	Boleslaw Samolinski, Polish Society of Allergology, Poland
19. Teaching of Smoking at the Faculty of Medicine	Urrutia-Pereira M, Chatkin J, Sarinho E, Evaldt S, Passe C, Mocellin L, Castilhos K, Ferreira I, Jaques L, Nunes C, Rinelli P Federal University of Pampa (Unipampa) - Uruguaiiana, RS, Brazil

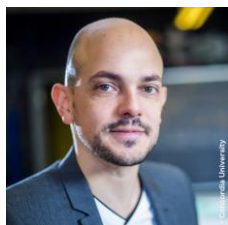
20. Open-source Games for Health, Multiplayer and Gamepads	Fabio Balli, Guillaume Jeanmaire, Richard Ibbotson, Yannick Gervais, Emmanuel Kellner, Stephane Gingras, Thomas Gaudy, Sze Man Tse, Myriam Bransi, Khadidja Chelabi, Nicole Silva-Lavigne, Sandra Pelaez, Laura Montalbano, Giovanna Cilluffo, Stefania la Grutta, Isabelle Sermet-Gaudelus, Youssef Mohammad
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THEME 5 - PRIORITIES FOR PAEDIATRIC AND ADOLESCENT LUNG HEALTH

Title	Authors
21. Prevalence of Asthma Indicators Among Adolescents in the Global Asthma Network Phase I in Syria.	Y Mohammad, G Dib, S Rafea, L Nahhas
22. Asthma-Related Knowledge Among Mothers of Asthmatic Children: A Latent Class Analysis	Stefania La Grutta on behalf of Simri – Irib-Cnr – Palermo - Italy
23. Atopy and Asthma-Friendly School (AAFS) in Korea	Woo Kyung Kim, Young-joo Cho, Suk-IL Chang, You-Yong Kim. Department of Pediatrics, Inje University, Department of Medicine, Ewha Womans University, Sung-Ae General Hospital, Seoul National University, Korea Asthma Allergy Foundation, Korea

Annex 5. List of Speakers

SPEAKERS (in alphabetical order of last name)

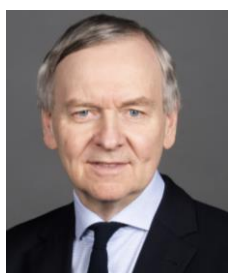


Fabio Balli, MAS, PhD(c), LLM(c)

Author, *Global crises, democratic solutions—within days*

Co-founder, Breathing Games

Researcher, Concordia University, Canada and IUC Turin, Italy



Louis-Philippe Boulet, MD FRCPC

Respirologist, Quebec Heart and Lung Institute, Laval University

Professor of Medicine, Laval University, Québec City, Canada

Chair of the GINA Board of Directors and member of the Science Committee



Jean Bousquet, MD, PhD

Professor, MACVIA-France



Alvaro A. Cruz, MD, PhD

Professor of Medicine - Federal University of Bahia, Brazil

Executive Director of ProAR Foundation

Member of the Board of Directors of GINA



Jaime Correia de Sousa, MD, MSc, PhD

Family physician, International Primary Care Respiratory Group

Affiliate Professor, School of Medicine, Minho University, Portugal



Marina Erhola, MD, PhD, MQI, Chief Executive Officer

Joint Authority for Health and Wellbeing in Pajjat-Hame Region, Finland

GARD Finland Chair



Bilun Gemicioglu, MD, PhD, Professor

Chair of the department of the Pulmonary Diseases in Istanbul University-Cerrahpaşa, Cerrahpaşa Medical School.
Director of Institute of Pulmonology and Tuberculosis in Istanbul University-Cerrahpaşa
GARD Turkey Coordinator



David MG Halpin, MA, DPhil, MBBS, FRCP, Professor

Consultant Physician & Honorary Professor of Respiratory Medicine, University of Exeter Medical School
Member of Board of Directors and Science Committee GOLD
Member of Executive Committee GARD



Letitia Harding, BSc, PGDipBus, MHlthMgt

CEO, Asthma and Respiratory Foundation New Zealand



You-Young Kim, MD, PhD

Professor Emeritus, Seoul National University College of Medicine
Honorary President, Korea Asthma Allergy Foundation
Past President, Asia Pacific Association of Allergy Asthma and Clinical Immunology (APAAACI)



Le Thi Tuyet Lan, MD, PhD, Professor

Chairwoman, Hochiminh City, Vietnam
Asthma, Allergy and Clinical Immunology Society
Respiratory specialist. UMC, University of Medicine and Pharmacy



Stephanie M. Levine, MD, FCCP

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UT Health-San Antonio and the South Texas Veterans Health Care System
Program Director Pulmonary and Critical Care Fellowship, San Antonio, TX, USA
Immediate Past-President- FIRS and the American College of Chest Physicians (CHEST)
Member of FIRS and GARD Executive Committees



Eva Mantzouranis, MD, PhD

Professor Emeritus of Pediatrics, University of Crete
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Guy Marks, BMedSc MB BS UNSW, PhD Syd, MRCP, FRACP

Professor, University of New South Wales, Sydney, Australia
President, International Union Against Tuberculosis and Lung Disease (The Union)



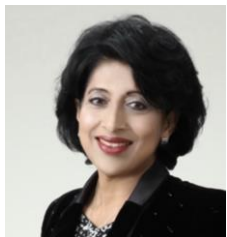
Florin Mihaltan, Professor

Chief of Pneumology Department National Institute of Pneumology M Nasta
Bucharest Romania National Representative GARD National representative GOLD
and GINA



Bente Mikkelsen, MD, MHA

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Ruby Pawankar, MD, PhD, FRCP, FAAAAI

President, Asia Pacific Association of Allergy Asthma and Clinical Immunology
Professor, Division of Allergy, Department of Pediatrics, Nippon Medical School,
Tokyo, Japan
Past President, World Allergy Organization



Bernard Pigearias, MD

Société de Pneumologie de Langue Française (SPLF)
Past vice-président
Espace Francophone de Pneumologie (EFP)
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Sarah Rylance, MD, PhD

Medical Officer for Chronic Respiratory Diseases, Noncommunicable Diseases Department, WHO headquarters



Bolesław Samoliński, MD, PhD

Professor and Head of Department of Prevention of Environmental Hazards, Allergology and Immunology, Chairman of the Health Sciences Council Medical University of Warsaw, Poland, Vice President, the Public Health Committee of the Polish Science Academy
WHO-GARD Planning Group Member



Asma El Sony, MD, MSc, PhD

Public Health Expert,
Head of Scientific Activities at the Epidemiological Laboratory,
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Yuanlin Song, MD, Professor

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Director, Shanghai key laboratory of lung inflammation and injury
Associate Director, Shanghai Respiratory Research Institute



Talant Sooronbaev, MD, Professor

Chief pulmonologist of the Ministry of Health and Social Development of the Kyrgyz Republic (MoH&SD), Director of the Republican Scientific Center of Pulmonology and Rehabilitation, National GARD Coordinator in the Kyrgyz Republic, President of the Kyrgyz Thoracic Society



Tuula Vasankari, MD, PhD

Secretary General, professor, specialist in respiratory diseases
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