JUNE 4TH, 2020
6:00-10:30 EST | 12:00-16:30 CET | 19:00-23:30 JST

PROGRAMME

SPECIAL SESSION – IN VIEW OF WISC: ALLERGY & COVID
Announcing a special WISC 2020 Pre-Conference Event "Allergy and COVID-19"
4 June 2020  Time: 6:00-10:30 EDT/ 12:00-16:30 CEST/ 19:00-23:30 JST

INTRODUCTION
Motohiro Ebisawa

COVID-19: A DISEASE THAT KNOWS NO BORDERS
Bryan Martin

DISCUSSION
Sandra Gonzalez-Diaz

COULD ALLERGY PROTECT FROM COVID-SARS2 INFECTION?
Daniel J Jackson

DISCUSSION
Alessandro Fiocchi

IMMUNOPATHOGENESIS OF COVID-SARS2 INFECTION
Rita Carsetti

DISCUSSION
José Antonio Ortega-Martell

ADVISE POLITICIANS IN A PANDEMICERA: THE ITALIAN GOVERNMENTAL COVID TASK FORCE EXPERIENCE
Alberto Villani

DISCUSSION
Peter Hellings

MANAGING ALLERGIC RHINITIS IN COVID-19-SARS2 ERA
Jean Bousquet

DISCUSSION
Philip W. Rouadi

MANAGING ASTHMA IN COVID-19-SARS2 ERA
Michael Levin

DISCUSSION
Gary Wong

MANAGING BIOLOGICS IN COVID-19-SARS2 ERA
Mario Morais-Almeida

DISCUSSION
Jonathan A. Bernstein

HANDLING OF ALLERGEN IMMUNOTHERAPY IN THE COVID-19 PANDEMIC
Ignacio Ansotegui

DISCUSSION
Gianni Passalacqua

PANDEMIC CONTINGENCY PLANNING FOR YOUR ALLERGY AND IMMUNOLOGY CLINIC
Dana Wallace

DISCUSSION
David Peden

HOW TO RUN AN ACADEMIC ALLERGY UNIT DURING COVID-19 PANDEMIC
Giacomo Malipiero

DISCUSSION
Walter Canonica

CONCLUSION
Motohiro Ebisawa
Symptoms of Coronavirus

What you need to know

• Anyone can have mild to severe symptoms.

• Older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

Watch for symptoms

People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms may appear 2-14 days after exposure to the virus. People with these symptoms may have COVID-19:

• Fever or chills
• Cough
• Shortness of breath or difficulty breathing
• Fatigue
• Muscle or body aches
• Headache

• New loss of taste or smell
• Sore throat
• Congestion or runny nose
• Nausea or vomiting
• Diarrhea

When to Seek Emergency Medical Attention

Look for emergency warning signs* for COVID-19. If someone is showing any of these signs, seek emergency medical care immediately:

• Trouble breathing
• Persistent pain or pressure in the chest
• New confusion
• Inability to wake or stay awake
• Bluish lips or face

*This list is not all possible symptoms. Please call your medical provider for any other symptoms that are severe or concerning to you.

Call 911 or call ahead to your local emergency facility: Notify the operator that you are seeking care for someone who has or may have COVID-19.

There is currently no vaccine to prevent coronavirus disease 2019 (COVID-19). The best way to prevent illness is to avoid being exposed to this virus. The virus is thought to spread mainly from person-to-person.

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs, sneezes or talks.
- These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.
- Some recent studies have suggested that COVID-19 may be spread by people who are not showing symptoms.

Everyone Should

- Wash your hands often
- Avoid close contact
- Cover your mouth and nose with a cloth face cover when around others
- Cover coughs and sneezes
- Clean and disinfect
- Monitor Your Health

2019-nCoV transmission through the ocular surface must not be ignored

Chaolin Huang and colleagues\(^1\) reported the epidemiology, symptoms, and treatment of patients infected by the 2019 novel coronavirus (2019-nCoV) in Wuhan, China. As ophthalmologists, we believe that transmission of 2019-nCoV through the eyes was ignored.

On Jan 22, Guangfa Wang, a member of the national expert panel on pneumonia, reported that he was infected by 2019-nCoV during the inspection in Wuhan.\(^2\) He wore an N95 mask but did not wear anything to protect his eyes. Several days before the onset of pneumonia, Wang complained of redness of the eyes. Unprotected exposure of the eyes to 2019-nCoV in the Wuhan Fever Clinic might have allowed the virus to infect the body.\(^2\)

## Numbers and percentages of comorbidity in patients with Covid-19

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Covid-19 patients</th>
<th>Mean or median age (y)</th>
<th>Numbers of comorbid patients (%)</th>
<th>Regional asthma prevalence</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asthma</td>
<td>COPD</td>
<td>Diabetes</td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
<td>0 (0)</td>
<td>2 (1.4)</td>
<td>17 (12.1)</td>
</tr>
<tr>
<td>Wuhan</td>
<td>140</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wuhan</td>
<td>548</td>
<td>60</td>
<td>5 (0.9)</td>
<td>17 (3.1)</td>
<td>83 (15.1)</td>
</tr>
<tr>
<td>Whole</td>
<td>1590</td>
<td>48.9</td>
<td>0 (0)</td>
<td>24 (1.5)</td>
<td>130 (8.2)</td>
</tr>
<tr>
<td>Georgia</td>
<td>305</td>
<td>60</td>
<td>32 (10.5)</td>
<td>16 (5.2)</td>
<td>121 (39.7)</td>
</tr>
<tr>
<td>California</td>
<td>54</td>
<td>53.5</td>
<td>3 (0.6)</td>
<td>0 (0)</td>
<td>11 (20.4)</td>
</tr>
<tr>
<td>New York</td>
<td>5700</td>
<td>63</td>
<td>513 (9)</td>
<td>308 (5.4)</td>
<td>1927 (33.8)</td>
</tr>
<tr>
<td>New York</td>
<td>1651</td>
<td>50</td>
<td>99 (6)</td>
<td>66 (4)</td>
<td>248 (15.0)</td>
</tr>
<tr>
<td>Mexico</td>
<td>Whole</td>
<td>46</td>
<td>270 (6)</td>
<td>202 (2.7)</td>
<td>1252 (16.7)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17485</strong></td>
<td><strong>922 (5.3)</strong>†</td>
<td><strong>635 (3.6)</strong></td>
<td><strong>3789 (21.6)</strong></td>
<td><strong>8.0%</strong></td>
</tr>
</tbody>
</table>

* The numbers of patients were calculated only if the total numbers of patients and percentages were presented.

Regional asthma prevalence data are cited from *a*Lancet. 2019;394(10196):407-18; and *b*CDC, 2020. Most recent national asthma data. Available at: http://www.cdc.gov/asthma/most_recent_national_asthma_data.htm; and *c*Asthma Res Pract. 2017;3:4.

† p < 0.0001 by Mantel-Haenszel test.

## Association of asthma, COPD and diabetes comorbidity on the severity of Covid-19

<table>
<thead>
<tr>
<th></th>
<th>Comorbidity+/- (%)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Non-severe</td>
<td>Severe</td>
<td>p value*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wuhan, Chinaa</td>
<td>548</td>
<td>279</td>
<td>269</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asthma</td>
<td>5/543 (0.9)</td>
<td>2/277 (0.7)</td>
<td>3/266 (1.1)</td>
<td>0.483</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COPD</td>
<td>17/531 (3.1)</td>
<td>4/275 (1.4)</td>
<td>13/256 (4.8)</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>83/465 (15.1)</td>
<td>31/248 (11.1)</td>
<td>52/217 (19.3)</td>
<td>0.010</td>
<td></td>
</tr>
<tr>
<td>New York, USAb</td>
<td>1651</td>
<td>914</td>
<td>737</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asthma</td>
<td>99/1552 (6.0)</td>
<td>47/867 (5.1)</td>
<td>52/685 (7.1)</td>
<td>0.128</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COPD</td>
<td>66/1585 (4.0)</td>
<td>14/900 (1.5)</td>
<td>52/685 (7.1)</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>248/1403 (15.0)</td>
<td>49/865 (5.4)</td>
<td>199/538 (27.0)</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2199</td>
<td>1193</td>
<td>1006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asthma</td>
<td>104/2095 (4.7)</td>
<td>49/1144 (4.1)</td>
<td>55/951 (5.5)</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COPD</td>
<td>83/2116 (3.8)</td>
<td>18/1175 (1.5)</td>
<td>65/941 (6.5)</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>331/1868 (15.1)</td>
<td>80/1113 (6.7)</td>
<td>251/755 (25.0)</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

*p values were calculated by Fischer’s Exact test, χ2 test or Mantel-Haenszel test.


# Numbers and percentages of comorbidity in patients with Covid-19

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Covid-19 patients</th>
<th>Mean or median age (y)</th>
<th>Numbers of comorbid patients (%)</th>
<th>Regional asthma prevalence</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asthma</td>
<td>COPD</td>
<td>Diabetes</td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
<td>0 (0)</td>
<td>2 (1.4)</td>
<td>17 (12.1)</td>
</tr>
<tr>
<td>Wuhan</td>
<td>140</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wuhan</td>
<td>548</td>
<td>60</td>
<td>5 (0.9)</td>
<td>17 (3.1)</td>
<td>83 (15.1)</td>
</tr>
<tr>
<td>Whole</td>
<td>1590</td>
<td>48.9</td>
<td>0 (0)</td>
<td>24 (1.5)</td>
<td>130 (8.2)</td>
</tr>
<tr>
<td>Georgia</td>
<td>305</td>
<td>60</td>
<td>32 (10.5)</td>
<td>16 (5.2)</td>
<td>121 (39.7)</td>
</tr>
<tr>
<td>USA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California</td>
<td>54</td>
<td>53.5</td>
<td>3 (0.6)</td>
<td>0 (0)</td>
<td>11 (20.4)</td>
</tr>
<tr>
<td>New York</td>
<td>5700</td>
<td>63</td>
<td>513 (9)</td>
<td>308 (5.4)</td>
<td>1927 (33.8)</td>
</tr>
<tr>
<td>New York</td>
<td>1651</td>
<td>50</td>
<td>99 (6)</td>
<td>66 (4)</td>
<td>248 (15.0)</td>
</tr>
<tr>
<td>Mexico</td>
<td>Whole</td>
<td>46</td>
<td>270 (6)</td>
<td>202 (2.7)</td>
<td>1252 (16.7)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17485</strong></td>
<td></td>
<td><strong>922 (5.3)</strong>&lt;sup&gt;†&lt;/sup&gt;</td>
<td><strong>635 (3.6)</strong></td>
<td><strong>3789 (21.6)</strong></td>
</tr>
</tbody>
</table>

* The numbers of patients were calculated only if the total numbers of patients and percentages were presented.
Regional asthma prevalence data are cited from <sup>a</sup>Lancet. 2019;394(10196):407-18; and <sup>b</sup>CDC, 2020. Most recent national asthma data. Available at: http://www.cdc.gov/asthma/most_recent_national_asthma_data.htm; and <sup>c</sup>Asthma Res Pract. 2017;34.

<sup>†</sup> p < 0.0001 by Mantel-Haenszel test.

COVID-19: A DISEASE THAT KNOWS NO BORDERS

Bryan Martin

DISCUSSION

Sandra Gonzalez-Diaz
COVID-19 Spreads Easily between People

- $R_0$
  - Estimates for COVID-19 initially 2.2
  - more accurate is 5.7 (95% CI 3.8-8.9)

- SI (Series Interval)
  - Estimated to be 5 to 7.5 days
  - Some reports estimate it to be as low as 4 days
    - SARS: 8.4 days
    - MERS: 14.6 days

- Doubling time for COVID-19 is estimated to be 2.3-3.3 days.

Strategies to limit infections

- Reduce travel to and from highly affected areas
  - Designed to keep infected people from traveling to areas of low infections

- Reduce $R_0$
  - Wear face mask (important for those who are sick to wear face mask)
  - Social distancing
    - Maintain distance from others
  - Restrictions on activities likely to increase transmissibility
    - Sports, singing, large gatherings
  - Increased hand washing
United States last week

- At least one person partying at the Lake of the Ozarks on Saturday (May 30) became symptomatic on May 31
- Protests have led to large gatherings of people in close proximity
Summary

- COVID-19, the disease caused by SARS CoV-2 is a pandemic: a world wide problem that does not respect borders
- Initial spread was primarily from travelers coming from or through Wuhan;
  - Infection quickly became established due to person to person transmission
- We have strategies to combat the spread of the virus, but countries vary in their level of response, and therefore the effectiveness of these national efforts.
<table>
<thead>
<tr>
<th>Time</th>
<th>COULD ALLERGY PROTECT FROM COVID-SARS2 INFECTION?</th>
<th>DISCUSSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:35-6:50 EST</td>
<td><strong>Daniel J Jackson</strong></td>
<td><strong>Peter Hellings</strong></td>
</tr>
<tr>
<td>12:35-12:50 CET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19:35-19:50 JST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6:50-7:00 EST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:50-13:00 CET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19:50-20:00 JST</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hypothesis

• A potential explanation for the observation that asthma and respiratory allergy have not been identified as a major risk factor for severe COVID-19 disease is a reduced ACE2 expression in airway cells and associated decreased susceptibility to infection

Jackson DJ et al, JACI 2020
The Urban Environment and Childhood Asthma (URECA) Study

- Birth cohort: prenatal enrollment
  - 560 children from allergic families
  - Poor urban neighborhoods in Baltimore, Boston, New York, St. Louis
  - Followed through 11 years of age (and beyond)
- 318 had nasal epithelial brushes obtained at 11 y/o
- Asthma was diagnosed at 10 y/o & allergic sensitization trajectories were assessed longitudinally
- Type 2 biomarkers were assessed cross-sectionally

Wood RA et al. JACI 2011
O’Connor GT et al. JACI 2018
Bacharier et al. AJRCCM 2019
IL-13 Reduces ACE2 Expression in Upper & Lower Airway \textit{in vitro}
Summary

- Allergic sensitization is associated with reduced ACE2 expression; ACE2 levels are lowest in those with both high levels of allergic sensitization and asthma.
- Asthma without allergic sensitization is not associated with changes in ACE2 expression.
- Controlled allergen exposure further reduces ACE2 expression in both upper and lower airway epithelium.
Conclusion

Underlying allergy and experimental allergen exposure reduce the expression of the SARS-CoV-2 receptor, ACE2, which may help explain the observations that respiratory allergy and asthma do not appear to be major risk factors for COVID-19 despite well-known susceptibilities to other respiratory viral infections.
HEROS: Human Epidemiology and response to SARS-CoV-2

- NIAID Surveillance study of children and young adults in 13 studies previously funded by NIH & their household members
  - Identify rates of infection in children & their family members
  - Determine proportion of infected who develop symptomatic COVID-19
  - Determine whether rates differ by asthma or allergic diseases
- “Light touch” [no in person visits]
  - Every 2 week nasal samples & samples during illnesses x 4 months
  - Stool samples
  - Baseline serum & convalescent serum samples
  - Electronic data collection
IMMUNOPATHOGENESIS OF COVID-SARS2 INFECTION

Rita Carsetti

DISCUSSION

José Antonio Ortega-Martell
IMMUNOPATHOGENESIS
Of
SARS-CoV-2
INFECTION

RITA CARSETTI
DIAGNOSTIC IMMUNOLOGY
B CELL PATHOPHYSIOLOGY UNIT
The clinical presentation of patients with SARS-CoV-2 infection ranges from lack of symptoms to COVID-19 with mild upper respiratory tract illness, or severe respiratory distress and multi-organ failure requiring intensive care unit admission and mechanical ventilation.

The variability of disease severity suggests that the individual immune response to the virus plays a most important role in determining the clinical course.
2. ANTIBODIES

SHM       CSR

Light zone  Dark zone
Hypothesis and Theory
published: 11 September 2017
CROSS-REACTIVE OR NATURAL ANTIBODIES?

[Graph showing data points for children and elderly, comparing different antibodies like IgA2 MERS NP, IgA2 MERS sClamp, IgM SARS2 sClamp, IgM MERS sClamp, IgM SARS2 NP, IgM SARS2 RBD, FcgR3aF HKU1 S1, FcgR3aF hCoV 229E S1, IgG hCoV 229E S1, with -log(Adjusted P Value) and Difference axes]

doi: https://doi.org/10.1101/2020.05.11.20098459
Plasma’s Path
How recovered coronavirus patients can help others with Covid-19.

1. Patients who recover from Covid-19 have antibodies that can recognize and help neutralize the virus.

2. Recovered patients donate blood plasma, which contains antibodies. The plasma is transfused into another patient suffering from coronavirus infection.

Effectiveness of convalescent plasma therapy in severe COVID-19 patients
9490–9496 | PNAS | April 28, 2020
| vol. 117 | no. 17

Screen convalescent patients

Neutralizing antibody concentration $> 1:640$

200 ml /recipient
Table 4. Comparison of serum neutralizing antibody titers and SARS-CoV-2 RNA load before and after CP therapy

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>CP transfusion date</th>
<th>Date</th>
<th>Serum neutralizing antibody titers</th>
<th>Serum SARS-CoV-2 RNA load (Ct value)</th>
<th>Before CP transfusion</th>
<th>Date</th>
<th>Serum neutralizing antibody titers</th>
<th>Serum SARS-CoV-2 RNA load (Ct value)</th>
<th>After CP transfusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>February 9</td>
<td>February 8</td>
<td>1:160</td>
<td>37.25</td>
<td></td>
<td>February 10</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>February 9</td>
<td>February 8</td>
<td>Unavailable</td>
<td>35.08</td>
<td></td>
<td>February 11</td>
<td>Unavailable</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>February 13</td>
<td>February 12</td>
<td>1:320</td>
<td>38.07</td>
<td></td>
<td>February 11</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>February 13</td>
<td>February 12</td>
<td>1:160</td>
<td>37.68</td>
<td></td>
<td>February 14</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>February 12</td>
<td>February 11</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
<td>February 14</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>February 12</td>
<td>February 11</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
<td>February 14</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>February 12</td>
<td>February 11</td>
<td>1:320</td>
<td>34.64</td>
<td></td>
<td>February 14</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>February 12</td>
<td>February 11</td>
<td>1:640</td>
<td>35.45</td>
<td></td>
<td>February 14</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>February 12</td>
<td>February 11</td>
<td>1:160</td>
<td>Negative</td>
<td></td>
<td>February 14</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>February 9</td>
<td>February 8</td>
<td>1:640</td>
<td>38.19</td>
<td></td>
<td>February 14</td>
<td>1:640</td>
<td>Negative</td>
<td></td>
</tr>
</tbody>
</table>
Identification of neutralizing human monoclonal antibodies from Italian Covid-19 convalescent patients
# A NEW ALLIANCE TO FIGHT COVID-19

<table>
<thead>
<tr>
<th>Preclinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CureVac</strong></td>
<td><strong>Moderna</strong></td>
<td><strong>Freshwater</strong></td>
<td><strong>CanSino</strong></td>
</tr>
<tr>
<td>Ph I to start by June 20</td>
<td>Spring/Early summer 2020</td>
<td>In Ph II since 12-Apr-20</td>
<td></td>
</tr>
<tr>
<td><strong>BioNTech</strong></td>
<td><strong>Inovio</strong></td>
<td><strong>University of Oxford</strong></td>
<td><strong>The Jenner Institute</strong></td>
</tr>
<tr>
<td>Ph I just approved by GER Authorities – should start by end of April</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Novavax</strong></td>
<td><strong>Sinovac</strong></td>
<td><strong>Wuhan Institute of Biological Products</strong></td>
<td><strong>Shenzhen Geno-Immune Medical Institute</strong></td>
</tr>
<tr>
<td>Ph I mid-May 2020</td>
<td></td>
<td>Wuhan Institute of Biological Products</td>
<td></td>
</tr>
<tr>
<td><strong>Janssen</strong></td>
<td><strong>Gree</strong></td>
<td><strong>GiMi</strong></td>
<td><strong>Shenzhen Geno-Immune Medical Institute</strong></td>
</tr>
<tr>
<td>Ph I by Sept 2020</td>
<td></td>
<td>Shenzhen Geno-Immune Medical Institute</td>
<td></td>
</tr>
</tbody>
</table>

**174 VACCINE CANDIDATE IN DEVELOPMENT**
### VACCINES in development

#### ON-GOING CLINICAL TRIALS

<table>
<thead>
<tr>
<th>Platform</th>
<th>Number of trials</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA</td>
<td>3</td>
<td>Pre clinical</td>
</tr>
<tr>
<td>Inactivated</td>
<td>1</td>
<td>Pre clinical</td>
</tr>
<tr>
<td>Live attenuated</td>
<td>1</td>
<td>Pre clinical</td>
</tr>
<tr>
<td>Non replicating viral vector</td>
<td>6</td>
<td>Pre clinical</td>
</tr>
<tr>
<td>Protein Subunit</td>
<td>15</td>
<td>Pre clinical</td>
</tr>
<tr>
<td>Replicating viral vector</td>
<td>3</td>
<td>Pre clinical</td>
</tr>
<tr>
<td>RNA</td>
<td>7</td>
<td>Pre clinical</td>
</tr>
<tr>
<td>VLP</td>
<td>1</td>
<td>Pre clinical</td>
</tr>
<tr>
<td>Unknown</td>
<td>5</td>
<td>Pre clinical</td>
</tr>
</tbody>
</table>

MANAGING ALLERGIC RHINITIS IN COVID-19-SARS2 ERA
Jean Bousquet

DISCUSSION
Philip W. Rouadi
<table>
<thead>
<tr>
<th>Question</th>
<th>Agree (%)</th>
<th>Somewhat disagree (%)</th>
<th>Completely disagree (%)</th>
<th>No answer (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Currently, nasal corticosteroid spray can be continued in the hay</td>
<td>192 (91.9)</td>
<td>4 (1.9)</td>
<td>3 (1.4)</td>
<td>10 (4.8)</td>
</tr>
<tr>
<td>fever season</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2  Stopping local nasal corticoid spray is not advised: suppression of</td>
<td>190 (90.8)</td>
<td>4 (1.9)</td>
<td>3 (1.4)</td>
<td>12 (5.8)</td>
</tr>
<tr>
<td>the immune system has not been proven and more sneezing after</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stopping means more spreading of the Coronavirus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  Prescribing local nasal spray against anosmia due to Corona infection</td>
<td>115 (51.5)</td>
<td>3 (1.4)</td>
<td>0</td>
<td>91 (47.4)</td>
</tr>
<tr>
<td>does not make sense</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Symptoms

<table>
<thead>
<tr>
<th></th>
<th>Allergic rhinitis</th>
<th>COVID-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhinorrhea</td>
<td>Common</td>
<td>Not often isolated</td>
</tr>
<tr>
<td></td>
<td>In cluster</td>
<td>Usually single symptom</td>
</tr>
<tr>
<td>Nasal obstruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sneezing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal pruritus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>Common with nasal symptoms</td>
<td>May occur isolated</td>
</tr>
<tr>
<td>Asthma symptoms</td>
<td>Common</td>
<td>Infrequent</td>
</tr>
<tr>
<td>Anosmia/dysgeusia</td>
<td>Hyposmia</td>
<td>Common</td>
</tr>
<tr>
<td>Fatigue</td>
<td>+</td>
<td>+++</td>
</tr>
<tr>
<td>Cough</td>
<td>Possible</td>
<td>Intense and for a long time</td>
</tr>
<tr>
<td>Other COVID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
With the current knowledge, in patients with COVID-19 infection, intra-nasal corticosteroid (including spray) can be continued in allergic rhinitis at the recommended dose.

Stopping local intra-nasal corticosteroid is not advised. Suppression of the immune system has not been proven and more sneezing after stopping means more spreading of the Coronavirus.

These recommendations are conditional since there is a paucity of data and should be regularly revised with new knowledge.
Allergic respiratory disease care in the COVID-19 era: a EUFOREA statement

Scadding Glenis K, MD,1, Hellings Peter W, MD, PhD2,3,4, Bachert Claus, MD, PhD5,6, Bjermer Leif, MD7, Diamant Zuzana, MD, PhD8,9,10, Gevaert Philippe, MD, PhD3, Kjeldsen Anette, MD, PhD11, Kleine-Tebbe Jorge, MD, PhD12, Klimek Ludger, MD, PhD13, Muraro Antonella, MD, PhD14, Roberts Graham, MD, PhD15, Steinsvik Andreas1 MD, PhD, Wagenmann Martin, MD, PhD17, Wahn Ulrik, MD, PhD18

Take home messages

- Early mild COVID-19 symptoms may be confused with or co-occurrent with allergic rhinitis
- Proper treatment of allergic rhinitis is very important at this time as uncontrolled hay fever may increase the risk of viral dissemination
- Such therapy (including AIT) is not immunosuppressive and does not represent a risk factor for more severe COVID19-induced disease.
- Topical and inhaled corticosteroids may even be beneficial or preventative for COVID-19 infection.
- Allergic airway disease is probably not a risk factor for more severe COVID 19 disease, however asthma control can worsen with viral infections.
- Sudden and complete anosmia may be an early sign of COVID-19 infection, differentiating it from AR.
COVID-specific screens

Repurposing of MASK-air

Inter-operable with MASK-air

App
Tablet
Web-questionnaire

Associated with
• Salivary tests
• Blood tests
<table>
<thead>
<tr>
<th>№</th>
<th>Primary question</th>
<th>Answer</th>
<th>Secondary question</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is your temperature?</td>
<td>C°</td>
<td>Does your chest or your back feel warm? YES/NO</td>
<td>NHS England</td>
</tr>
<tr>
<td>2</td>
<td>Are you having an abnormal breathing when you speak of do a small activity?</td>
<td>VAS</td>
<td></td>
<td>Ministère France</td>
</tr>
<tr>
<td>3</td>
<td>Are you coughing?</td>
<td>VAS&gt;20</td>
<td>Have you been coughing a lot for more than one hour or have you had 3 or more coughing episodes in the past 24 hours? YES/NO</td>
<td>NHS England</td>
</tr>
<tr>
<td>4</td>
<td>Do you have a headache?</td>
<td>VAS</td>
<td></td>
<td>Ministère</td>
</tr>
<tr>
<td>5</td>
<td>Do you have muscle pain or stiffness?</td>
<td>VAS</td>
<td></td>
<td>Ministère</td>
</tr>
<tr>
<td>6</td>
<td>Do you have a sore throat?</td>
<td>VAS</td>
<td></td>
<td>Ministère</td>
</tr>
<tr>
<td>7</td>
<td>For the past 24 hrs, can you eat or drink?</td>
<td>YES/NO</td>
<td></td>
<td>Ministère</td>
</tr>
<tr>
<td>8</td>
<td>Do you have a loss of smell/taste?</td>
<td>VAS</td>
<td></td>
<td>Ministère</td>
</tr>
<tr>
<td>9</td>
<td>In the past 24 hr did you have diarrhea (at least 3 soft stools)?</td>
<td>YES/NO</td>
<td></td>
<td>Ministère</td>
</tr>
<tr>
<td>10</td>
<td>Do you have red eyes or tearful?</td>
<td>VAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Do you have other symptoms?</td>
<td>Open Q</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Is diet partly responsible for differences in COVID-19 death rates between and within countries?
Vegetable-based

Fermented foods by region

Further information: List of fermented foods

- Worldwide: alcohol (beer, wine), vinegar, olives, yogurt, bread, cheese
- Asia
  - East and Southeast Asia: amazake, atchara, belacan, burong mangga, com ruou, doenjang, douchi, lambanog, kimchi, kombucha, leppet-so, narezushi, miso, nata de coco, nattō, oncom, prahok, ruou nep, sake, soju, soy sauce, stinky tofu, tape, tempeh, zha cai
  - Central Asia: kumis, kefir, shubat
  - South Asia: achar, appam, dosa, dhokla, dahi (yogurt), idli, mixed pickle, ngari, sinki, tongba, paneer
- Africa: garri, injera, laxoox, mageu, ogi, ogiri, iru
- Americas: chicha, chocolate, vanilla, hot sauce, tibicos, pulque, muktuk, kiviak
- Middle East: torshi, boza
- Europe: sourdough bread, elderberry wine, kombucha, pickling, rakfisk, sauerkraut, pickled cucumber, surströmming, mead, salami, sucuk, prosciutto, cultured milk products such as quark, kefir, filmjölk, crème fraîche, smetana, skyr, raki, tupí.
- Oceania: poi, kaanga pirau
<table>
<thead>
<tr>
<th>Time</th>
<th>EST</th>
<th>CET</th>
<th>JST</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15-8:30</td>
<td>14:15-14:30</td>
<td>21:15-21:30</td>
<td></td>
</tr>
<tr>
<td>MANAGING ASThma IN COVID-19-SARS2 ERA</td>
<td>Michael Levin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30-8:40</td>
<td>14:30-14:40</td>
<td>21:30-21:40</td>
<td></td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>Gary Wong</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Controlling asthma during pandemic
<table>
<thead>
<tr>
<th>Symptoms</th>
<th>COVID-19</th>
<th>INFLUENZA*</th>
<th>THE COMMON COLD</th>
<th>ASTHMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever (&gt;37.8°C)</td>
<td>Common</td>
<td>Common</td>
<td>Uncommon</td>
<td>No</td>
</tr>
<tr>
<td>Sore Throat</td>
<td>Sometimes</td>
<td>Sometimes</td>
<td>Common</td>
<td>No</td>
</tr>
<tr>
<td>Cough</td>
<td>Common</td>
<td>Common</td>
<td>Sometimes, mild</td>
<td>No</td>
</tr>
<tr>
<td>Runny, Stuffy Nose</td>
<td>Sometimes</td>
<td>Sometimes</td>
<td>Common</td>
<td>No</td>
</tr>
<tr>
<td>Sneezing</td>
<td>No</td>
<td>No</td>
<td>Common</td>
<td>No</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Sometimes</td>
<td>Common</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Body Aches and Pains</td>
<td>Sometimes</td>
<td>Common</td>
<td>Sometimes, mild</td>
<td>No</td>
</tr>
<tr>
<td>Headache</td>
<td>Sometimes</td>
<td>Sometimes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Shortness of Breath</td>
<td>Sometimes</td>
<td>Uncommon</td>
<td>No</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>Uncommon</td>
<td>Uncommon, may occur in small children</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Provider recommendations

- If using telehealth, increase the frequency of the telehealth repeat “visit” quicker than you would have if you’d seen the patient in person
- Understand and pre-empt problems in receiving repeat medications
Patient recommendations

ASTHMA ACTION PLAN FOR:
Name: ______________________

Asthma sufferers can:
• Have NO Symptoms
• Have a normal lifestyle, play sport and sleep well.
• Have as few acute attacks as possible
• Miss little or no school and work
• Have your best possible peak flow

• Take your controller medication every day whether you feel well or unwell.
• Visit the Doctor /Asthma Clinic twice a year even if asthma is well controlled.
• Take your medication/pumps/spacers with you to every doctors/nurses visit.
• Take this plan to each visit so it can be updated.
• Take your asthma diary to each visit.

Doctor's Phone No: ______________________
Hospital Phone No: ______________________
Date ______

Normal Peak flow

Best Peak flow
Treatment of asthma exacerbations
Exhaled air dispersion distances
Oxygen flow 1 L/min
0.3m. Background smoke visible

Oxygen flow 3 L/min
0.3m. Background smoke easily visible

Oxygen flow 5 L/min
0.45m: Marked background smoke

Oxygen flow 1 L/min with electric blanket
0.25: Marked background smoke
Nebulised droplet dispersion
0.45m with normal lung conditions

0.54m with mild lung injury. Beyond 0.8m with severe injury

Nebulisers vs MDIs

2.5-5mg

200 ug
Ari A et al. A guide to aerosol delivery devices for respiratory therapists. American Association for Respiratory Care; 2009
COVID-19: GINA ANSWERS TO FREQUENTLY ASKED QUESTIONS ON ASTHMA MANAGEMENT

March 25, 2020
Follow GINA at @ginasthma

- People with asthma should continue all of their inhaled medication, including inhaled corticosteroids, as prescribed by their doctor.

- Nebulisers should, where possible, be avoided for acute attacks due to the increased risk of disseminating COVID-19 (to other patients AND to physicians, nurses and other personnel).

  - Pressurized metered dose inhaler (pMDI) via a spacer is the preferred treatment during severe attacks. (Spacers must not be shared at home)

  - While a patient is being treated for a severe attack, their maintenance inhaled asthma treatment should be continued (at home AND in the hospital).

- Patients with allergic rhinitis should continue to take their nasal corticosteroids, as prescribed by their clinician.

- Routine spirometry testing should be suspended to reduce the risk of viral transmission, and if absolutely necessary, adequate infection control measures should be taken.
Acute asthma management during SARS-CoV2-pandemic 2020.
WAOJ. 2020. 13(5): 100125
Life threatening asthma: 1 or more of following features:

- Cyanosis, $O_2$ saturation <80%
- Peak Expiratory Flow (PEF) < 33%
- Feeble respiratory effort or silent chest
- Bradycardia, dysrhythmia or hypotension
- Exhaustion, confusion or coma

Severe asthma: 1 or more of following features:

- $O_2$ saturation <90% or $PaO_2$ < 8 kPa
- Normal or raised $PaCO_2$ (4.6–6.0 kPa)
- Marked tachycardia or pulsus paradoxus
- Impaired speech or feeding
- Peak Expiratory Flow (PEF) < 60%
- Reduced air entry
- Previous ICU admission

Mild-moderate asthma: All of the features below:

- No cyanosis AND $O_2$ saturation >90% AND
- Normal conscious level AND
- Good air entry AND
- No marked tachycardia AND
- No pulsus paradoxus AND
- Normal speech & feeding AND
- PEF > 60% AND
- No previous ICU admission
Mild-moderate Asthma Management

Multi-dosing with salbutamol Metered Dose Inhaler (MDI) + spacer
- Age < 4yrs: 2-6 puffs
- Age > 4yrs: 4-10 puffs
- Administer 1 puff at a time via spacer allowing at least 6 breaths per puff. Shake inhaler between each puff.
- Oral prednisone (1-2mg/kg, max 40 mg)

- Mild-Moderate
- Initial Assessment
- See Box 1, 2 and 3 for guide to severity assessment
- Severe Asthma
- Resuscitation
- Good response / Stable
  - Yes
  - No
  - See Box 4 & 5 for assessment of response to treatment

Superscript numbers - see “Asthma Notes”
Severe Asthma Management

Modified to avoid nebulised therapy unless life threatening

Continuous O2 sats monitoring, heart and resp rate monitoring & assessment
Oxygen Saturation ≤ 92%. Give oxygen via nasal prongs at 2-3 liters per minute

**Severe Asthma**

- Life threatening asthma
  - Resuscitation & airway management if needed

**Inhaled therapy**

- Nebulised salbutamol PLUS ipratropium
  - together THREE TIMES IN 1st HOUR
  - Oxygen flow rate > 6L/min
  - Total volume of 4 mLs. No saline needed

<table>
<thead>
<tr>
<th>All ages</th>
<th>Salbutamol 5mg/ml (10mg) 10mls (2 ml)</th>
<th>OR</th>
<th>Fenoterol 1mg/ml (2mg) 2ml (2 ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUS Ipratropium 0.25mg/ml 500mcg (2 ml)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Not improving
  - Continuous nebulisation for 1 hr
  - Start with 6 ml of either salbutamol 5mg/ml solution or fenoterol 1mg/ml solution
  - AND proceed directly to next step

- Not improving but not life threatening

- Single dose intravenous salbutamol 15mcg/kg in 10mLs saline over 10 minutes. Review diagnosis. Consider pneumothorax. Blood gas

For all patients, while inhaled therapy in progress:

- Establish IV access
- Oral prednisone 2mg/kg (max 60mg)
- OR IV methylprednisolone 2mg/kg (max 48mg)
- OR IV dexamethasone 0.6mg/kg (max 36mg)

AND

- Single dose IVI MgSO4, 50% solution (2mmol/ml)
- 0.1ml/kg (50mg/kg) (max 2g) in 20mLs saline over 20 minutes

**Continuous assessment.**

**Severe Asthma Notes**

**Inhaled therapy**

- Multi-dosing
  - With salbutamol Metered Dose Inhaler (MDI) + spacer
  - REPEAT THREE TIMES IN 1st HOUR
  - All ages: 10 puffs
  - Administer 1 puff at a time via spacer allowing at least 6 breaths per puff.
  - Shake inhaler between each puff.

**Good response Stable**

**Continue salbutamol metered dose inhaler + spacer multi-dose (10 puffs) up to hourly**
Life threatening asthma
Resuscitation & airway management if needed

Severe Asthma

Inhaled therapy

Nebulised salbutamol PLUS ipratropium
together THREE TIMES IN 1st HOUR
Oxygen flow rate >6L/min
Total volume of 4 mls. No saline needed

<table>
<thead>
<tr>
<th>All ages</th>
<th>Salbutamol 5mg/ml</th>
<th>OR</th>
<th>Fenoterol 1mg/ml</th>
<th>10mg (2 ml)</th>
<th>2mg (2 ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUS</td>
<td>Ipratropium 0.25mg/ml</td>
<td></td>
<td></td>
<td>500ug (2 ml)</td>
<td></td>
</tr>
</tbody>
</table>

REPEAT THREE TIMES IN 1st HOUR

All ages: 10 puffs
Administer 1 puff at a time via spacer allowing at least 6 breaths per puff.
Shake inhaler between each puff.
Severe Asthma Management
Modified to avoid nebulised therapy unless life threatening

Continuous O2 sat monitoring, heart and resp rate monitoring & assessment
Oxygen Saturation ≤ 92%: Give oxygen via nasal prongs at 2-3 liters per minute

Initial Assessment: Choose inhaled therapy
AND proceed to next step

For all patients, while inhaled therapy in progress:
Establish IV access
Oral prednisone 2mg/kg (max 60mg),
OR IV methylprednisolone 2 mg/kg (max 48mg)
OR IVI dexamethasone 0.6mg/kg (max 36mg)
AND
Single dose IVI MgSO₄ 50% solution (2mmol/ml)
0.1ml/kg (50mg/kg) (max 2g) in 20mls saline⁵ over 20 minutes⁶

Continuous assessment.
Effective deposition of aerosols

- Quiet, non-distressed breathing
- Slow inspiratory flow
- Deep inhalation and breath hold OR
- 6 breath tidal breathing
- No mask if possible
MANAGING BIOLOGICS IN COVID-19-SARS2 ERA
Mario Morais-Almeida

DISCUSSION
Jonathan A. Bernstein
1. How to manage severe asthma during a pandemic?
2. What do we know about COVID-19 and severe asthma?
3. Should biologics be used differently now in asthma?
4. Can we use biologicals in asthmatics with COVID-19?
5. In summary...
1. How to manage severe asthma in a pandemic?

Global Initiative for Asthma (GINA) as other organizations suggests that patients with asthma should continue to use their control medications including ICS during the COVID-19 epidemic.

Biological therapies should be used in severe asthma patients who qualify for them, in order to limit the need for OCS as much as possible.

Centers must organize themselves to promote a home-based administration of biologics.
1. How to manage severe asthma in a pandemic?

Stopping biologics may lead to higher risk of asthma exacerbations, increased OCS use, and higher probability of ER / hospitalization that themselves represent risk factors for SARS-CoV-2 exposure/infection.*

Asthma (HR=0.78[95%CI,0.62-0.98]; p=0.031) was significantly associated with increased length of hospital stay.**

Patients with asthma must maintain their control treatment considering their ages, comorbid diseases, and specific circumstances.*
2. What do we know about COVID-19 and severe asthma?  ...“asthma prevalence in COVID-19...”
### 2. What do we know about COVID-19 and severe asthma?

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>N</th>
<th>Description</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>NewYork-Presbyterian Columbia University Irving Medical Center</td>
<td>USA</td>
<td>1,000</td>
<td>Adult patients hospitalized (85%), from those 27.7% admitted ICU.</td>
<td>11.3%</td>
</tr>
<tr>
<td>ISARIC study</td>
<td>UK</td>
<td>16,749</td>
<td>Adult and children hospitalized patients (median age 72 years, range 0-104 years)</td>
<td>14.0%</td>
</tr>
<tr>
<td>OpenSAFELY case control populational study</td>
<td>UK</td>
<td>5,683</td>
<td>Fatal cases</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“asthma with higher risk of COVID-19 death”, HR=1.1 to 1.25 (no or recent use of OCS)</td>
<td></td>
</tr>
</tbody>
</table>
3. Should biologics be used differently now?

Probably not, promoting home-based administration...

Efficacy / safety (2-year follow-up): Benralizumab, Dupilumab, Mepolizumab, Omalizumab, Reslizumab - viral infections, including respiratory infections, have not been reported as seriously adverse events in clinical trials.

- Is there an increased risk of patients using biologics to become infected with SARS-CoV-2? - no data to support!
4. Can we use biologicals in patients with severe asthma (previously prescribed) + COVID-19?

We don’t now, but...

- Once asthmatic patients using biologics become infected, would the COVID-19 become more severe because of using biologics?

- Would the biological therapy help to decrease the risk of infection / severity?

...probably COVID-19 treatment would be compatible with biologicals in severe asthma but the decision of maintaining / postponing therapy should be a case-by-case based decision by a multidisciplinary team.
5. In summary...

Asthma was identified as a significant risk factor for COVID-19 severity / death, in particular in patients treated with oral steroids;

Maintain regular control treatment in patients with severe asthma, including with biologicals, preventing exacerbations;
5. In summary...

There is no evidence suggesting that the immune response to SARS-CoV-2 should be impaired in asthma patients treated with biological therapies; **Registries** of cases of COVID-19 in patients with severe asthma will help to address a clinical challenge where we still have many questions and few answers.
HANDLING OF ALLERGEN IMMUNOTHERAPY IN THE COVID-19 PANDEMIC

Ignacio Ansotegui

DISCUSSION

Walter Canonica
AIT as PERSONALIZED THERAPY

Identification of Molecular Mechanism of disease

Diagnostic Tool for the Molecular Mechanism

Molecular mechanism:
IgE, arming effector cells, binds allergen/component
mediator release & symptoms

Diagnostic Tool:
IgE to causal allergen/component detection

Treatment Blocking the Molecular Mechanism

Treatment Blocking the Molecular Mechanism
AIT- Allergen Immunotherapy (SCIT-SLIT)

Collins, NEJM 2010 [22]

Canonica et al. WAO J.2015 [18]
Passalacqua & Canonica, CMA 2015 [23]
Eosinophilic Asthma is not always allergic

Two mechanisms in Eosinophilic asthma

Allergic eosinophilic airway inflammation

Nonallergic eosinophilic airway inflammation
Immune regulation of allergic immune responses as a consequence of AIT

Mechanistic and clinical responses of allergen immunotherapy (AIT) on adults and children

Adults (>18 yr)  
Children (<12 yrs), or  
Adolescent (12-16 yrs)

Allergen Immunotherapy  
(SCIT and SLIT)

Clinical Outcomes
Adults and Children:
- Rhinocconjunctivitis Total Symptom Score
- Skin Prick Test
- Rescue Medication Score
- Quality of Life
- Asthma Symptom and Medication Score
- Early and Late skin response

Children:
- Occurrence in new sensitization

Serological Outcomes
Adults and Children:
- Allergen-specific IgE
- Allergen-specific IgG and IgG4

Cellular Outcomes
Adults:
- IL-5, TGF-β
- IL-10, IFN-γ
- eosinophils, basophils, mast cells and ILC2s.
- nTreg, iTreg and Tfr cells
- Th2, Th2A, Tfh cells
- IL-10+ Breg cells

AIT should be considered if all are present:

- Moderate-to-severe symptoms of allergic rhinitis, +/- conjunctivitis, on exposure to clinically relevant allergen(s)
- Confirmation of IgE sensitisation clinically relevant allergen(s)
- Inadequate control of symptoms despite antihistamines and/or topical corticosteroids and allergen avoidance measures and/or unacceptable side-effects of medication

Pros and cons of the various options need to be considered when choosing the best approach for each patient:

**Pros**

- Pre-, pre-/coseasonal and continuous SCIT are effective in short term for seasonal and perennial AR
- Pre/coseasonal SCIT therapy is shorter but continuous SCIT may be more effective
- 3-y continuous SCIT is effective in long term for grass pollen-driven AR

**Cons**

- Need for injections (usually monthly on maintenance, more on updosing)
- Need to be observed for at least 30 minutes in clinic after each injection
- Moderate-to-severe systemic allergic reactions: 1:2000 chance per injection, less with allergoids
- Frequent minor, local adverse effects

**Clinicians should:**

- Consider availability of products with documented clinical effectiveness
- Ensure availability of staff to undertake SCIT injections and maintain regular contact with patients on SLIT
- Ensure good communication and relationship with patient to facilitate good decisions making on starting correct therapy and maintaining adherence

**Discuss with patient:**

- Efficacy of each approach
- Safety of each approach
- Cost of each approach
- Need for adherence
- Frequency of clinic visits including travel
- Which approach patients feels is best for them

**SCIT**

- Pre, pre-/coseasonal and continuous SLIT tablets or drops are effective in short term for seasonal AR
- Continuous SLIT tablet is effective in short term for perennial AR
- 3-y continuous SLIT is effective in long term for grass pollen (tablets or drops) and HDM (tablets only)
- No injections
- Able to take at home after first dose
- Need for observation in clinic after first dose
- Rare moderate to severe systemic reactions (<1:500 chance over 3 y)
- Most experience minor, local adverse effects, usually self-limited
- Need to remember to take daily doses at home
Conclusions

There is evidence that AIT in allergic asthma can achieve substantial reductions in short-term symptom and medication scores, with subgroup analyses confirming a benefit from SCIT and a questionable benefit from SLIT.

Further there is evidence showing that SCIT decreases allergen-specific airway hypereactivity and improves asthma specific quality-of-life.

The effect of AIT on asthma control and exacerbations is not conclusive, neither its long-term efficacy after stopping AIT, which requires further investigation.

Conclusions

AIT is effective in achieving clinically important short term improvements in symptom, medication and combined symptom and medication scores.

There is a limited body of evidence on the longer-term effectiveness of AIT in improving symptom scores.

Suggested algorithm for areas with no dominant pollens.

SOUTH EUROPE: No dominant-pollen Areas

Clinical history:
- Season of symptoms
- Clinical findings (rhinitis, asthma, food allergy...)

SPT and or IgE test

Single Allergen positive response

Various positive tests

Component resolved diagnosis and correlation with clinical history (recommended panel: Php1/5, Ole e 1, Phl p7, Phl p 12, Par j 2, Cup a 1, Art v 1, Sal k 1, Pla a 1/2, Pru p 3, Amb a 1)

Select a maximum of three allergens for AIT (consensus workshop). There are important regional differences in the clinical relevance of the different allergens. (e.g. Parietaria in Italy and Greece, Salsola in SE Spain, Cypress in central Spain, Platanus in Barcelona, Ragweed in North Italy). No clear AIT recommendation in the guidelines.
Mixed allergen AIT

  - 13 studies
  - Few were well-designed, well-powered DBPC trials. Head-to-head comparative data with single-allergen regimens were rarely provided.
  - Simultaneous delivery of multiple unrelated allergens can be clinically effective but that there was a need for additional investigation (particularly in SLIT).
Mixed allergen SLIT

  • 54 patients: placebo vs single-allergen SLIT (19 mcg of Phl p 5 daily) vs multiallergen SLIT (the same dose of timothy extract plus 9 additional pollen extracts)
  • There were no significant symptom or medication score differences versus placebo in either treatment group
  • Changes in various immune parameters for the single-allergen group

Mixed allergen SCIT

- Patients monosensitized to *Cynodon* vs polysensitized (Cynodon + other allergens)
- SCIT: Cynodon vs Cynodon+other vs placebo
- Only monosensitized patients showed a significant clinical effect

- Patients monosensitized to *HDM* vs polysensitized (HDM +other)
- SCIT: HDM vs mixtures
- Positive clinical outcome
- However, the reduction was significantly (P < 0.05) less intense in the polysensitized group

*Calderón M et al. J Allergy Clin Immunol 2012; 129:929-34*
Mixed allergen SCIT

  - DBPC trial
  - depigmented-polymerized birch and grass pollen extract
  - 285 patients
  - Positive clinical efficacy, immunologic changes, safety

ALLERGEN EXTRACTS

AQUEOUS

DEPOT

POLYMERIZED
QUALITY CONTROL
Degree of extract polymerization

Chromatography and electrophoresis to monitor the degree of extract polymerization

- Olea europaea extract
- Olea europaea Polymerized extract
- Marker
- Extract
- Polymerized extract
Increased efficacy and safety

Allergoids

- Higher MW
- Lower IgE binding
- Same IgG binding
- Same cellular recognition
- Reduced proteolytic activity

- Lower allergenicity
- Rapid schemes (cluster and rush)
- Immunogenicity is retained
- Possibility to mix mites with pollens
Proteolytic activity of DPT on Phleum pratense

E. Fernández-Caldas et al. Grass and mite mixtures: how does the proteolytic activity of Dermatophagoides pteronyssinus affect Phleum pratense extracts?
ALLERGOIDS: CONCLUSIONS

Maintains immunogenicity

Reduces allergenicity

Safety

Possibility of dose increase
Maximum dose in less time
Possibility of mixing allergens at maximum doses without dilution

Clinical benefit in less time
Very good Safety
Reduction of resource consumption
Which Patients for Immunotherapy?

Appropriate clinical manifestations.

Demonstrated IgE-mediated sensitivity to relevant allergen(s)

Significant exposure to the relevant allergen(s)

Availability of high quality extract for the relevant allergen(s).

Asthma, if present, adequately controlled.
Requirements for Physician Competencies in Allergy: Key Clinical Competencies Appropriate for the Care of Patients With Allergic or Immunologic Diseases

A Position Statement of the World Allergy Organization


A. The immunotherapy has been prescribed by a specialist.

B. The first-level physician and other professionals have had adequate training in allergy and the recognition and management of anaphylaxis to provide this service safely.

C. The location where immunotherapy is performed fulfills all the conditions for patient safety. The site where immunotherapy is performed should be equipped to treat severe allergic reactions.
Recommendations in non COVID-19 individuals

**Stopping of intracutaneous immunotherapy is not advised.** Especially in potentially life-threatening allergies like, e.g. venom allergy, SCIT should be regularly continued.

**Stopping of sublingual immunotherapy is not advised.** Supply the patient with sufficient medication for a minimum of 14 days of quarantine situation.

Both subcutaneous and sublingual immunotherapy can be continued in the current COVID-19 pandemics, in asymptomatic patients with negative test result or without exposure or contact to SARS-CoV-2 positive individuals or travel to high-risk areas.

Preparedness of your Allergy clinic is imperative to cope with COVID 19. Follow WHO guidelines and advice staff accordingly.

These recommendations are conditional since there is a paucity of data and they should be revised regularly with new information on COVID-19.
Periods of transmissibility according to the severity of cases of COVID-19 and detection periods by PCR and serological techniques.

PCR asymptomatic/mild
PCR severe/critical
Antibodies (Ab)
IgM/IgA Ab
IgG Ab

Asymptomatic
Mild
Severe
Critical

EXPOSURE
0 onset of symptoms

0 high transmissibility
1 low transmissibility
2 not transmittable

https://www.mscbs.gob.es/
**Recommendations in COVID-19 diagnosed cases or suspicion for SARS-CoV-2 infection**

<table>
<thead>
<tr>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stopping of intracutaneous immunotherapy is advised.</td>
</tr>
<tr>
<td>Stopping of sublingual immunotherapy is advised.</td>
</tr>
<tr>
<td>Both subcutaneous and sublingual immunotherapy should be discontinued in symptomatic patients with exposure or contact to SARS-CoV-2 positive individuals, travel to high-risk areas or positive test results.</td>
</tr>
</tbody>
</table>

*Allergy: European Journal of Allergy and Clinical Immunology*

**Handling of allergen immunotherapy in the COVID-19 pandemic: An ARIA-EAACI statement**

Ludger Klimke, Marek Jutel, Cezmi Akdis, Jean Bousquet, Mueccel Akdis, Claus Bachert, Ioana Agache, Ignacio Ansotegui, Anna Bedbrook, Sintia Bosnic-Anticevich... See all authors

First published: 24 April 2020
https://doi.org/10.1111/all.14336
ALLERGY CARE DOES NOT STOP WITH COVID-19

WORLD ALLERGY WEEK 2020
28 JUNE - 4 JULY
9:30-9:45 EST 15:30-15:45 CET 22:30-22:45 JST

PANDEMIC CONTINGENCY PLANNING FOR YOUR ALLERGY AND IMMUNOLOGY CLINIC

Dana Wallace


DISCUSSION

David Peden
COVID-19 Pandemic Contingency Planning for your Allergy/Immunology Clinic

Dana V. Wallace, MD
Assistant Clinical Professor
Nova Southeastern University
Ft. Lauderdale, FL
COVID-19: Pandemic Contingency Planning for the Allergy and Immunology Clinic

Marcus S. Shaker, MD, MSc,a,b, John Oppenheimer, MDc, Mitchell Grayson, MDd, David Stukus, MDD, Nicholas Hartog, MDe, Elena W.Y. Hsieh, MDf, Nicholas Rider, DOg, Cullen M. Dutmer, MDf, Timothy K. Vander Leek, MDh, Harold Kim, MDi, Edmond S. Chan, MDj, Doug Mack, MDk,l, Anne K. Ellis, MDm, David Lang, MDn, Jay Lieberman, MDo, David Fleischer, MDf, David B.K. Golden, MDp, Dana Wallace, MD, Jay Portnoy, MDr, Giselle Mosnaim, MD, MScs, and Matthew Greenhawt, MD, MBA, MS

- Consensus-based best practice recommendations presented in an algorithmic approach for patient prioritization and allergy/immunology service delivery during the global COVID-19 pandemic— to be used in both reducing and resuming clinical services
- Developed by a diverse ad-hoc expert panel of both academic and private allergy/immunology specialists from North America
- Emphasis on “red zone” measures during the peak of the COVID-19 pandemic
- Expansion of services using telehealth and other virtual encounters
- “Ultimately, any decision to reduce or shift service resides within the sole autonomy of the clinician, their practice, their health care system, and their community.”
Figure 1: Theoretic Model of Pandemic Caseload vs. Healthcare Infrastructure Capacity

FLATTENING THE CURVE

"WITHOUT PROTECTIVE" MEASURES

HEALTHCARE SYSTEM CAPACITY

"WITH PROTECTIVE MEASURES"

TIME SINCE FIRST CASE

SOURCE: CDC, THE ECONOMIST, @CT_BERGSTROM

Figure 2: Proposed Paradigm of Pandemic Threat Levels Affecting Normal Allergy/Immunology Operation

Green
- No alert level, no defined risk or known cases
- Normal services can/should occur
- No service adjustments necessary

Yellow
- Emergence of contagious pandemic illness, with signs of possible community-acquired spread
- No declaration of state, local, or national state of emergency declared
- Consider potential for service disruption in selected patient risk-groups, and need to adjust visit schedules and clinic/staff availability

Orange
- State, local, and/or national state of emergency declared in response to a contagious pandemic with confirmed community-acquired spread
- Social distancing measures recommended in the community
- Implement partial service adjustment in selected patient risk groups

Red
- State, local, and/or national state of emergency declared in response to a contagious pandemic with confirmed community-acquired spread, with active quarantine measures recommended for all citizens
- Imminent risk to patients and medical staff
- Social distancing measures enacted in the community, and actively recommended by health authorities
- Significant service adjustments necessary across all patients

Management of asthmatics during “shelter in place”

- Maintain current daily controller medications
- Manage asthma according to current guideline-based recommendations
- Postpone in-person routine visits for well-controlled asthmatics
- Arrange virtual visits to ensure continuity of care, giving priority to those who have had an exacerbation or poor control within past 6 months
- Give priority to asthmatics who are in CDC/WHO defined “high risk” groups
- Suspend screening for clinical trials and follow sponsor directions for patients enrolled in clinical trials (using virtual care resources as permitted)
- For moderate/severe asthma exacerbations:
  - Determine COVID-19 risk
  - Determine potential need for aerosol-generating procedures (e.g., nebulized bronchodilator or spirometry)
Figure 3: Triage Approach to the Patient with an Asthma Exacerbation During a Pandemic

- **High COVID risk, Low asthma severity risk**: Appropriately tested per CDC and state protocols with telehealth management of asthma.
- **High COVID risk, High asthma severity risk or uncertain diagnosis**: Need for face-to-face evaluation with potential availability of PPE and negative pressure isolation if an aerosol generating procedure is anticipated.
- **Low COVID risk, Low asthma severity risk**: Telehealth management.
- **Low COVID risk, High asthma severity risk or uncertain diagnosis**: Need for face-to-face evaluation which may occur in primary care or allergy clinic.
Allergen Immunotherapy and biologics during “Shelter in place” orders

- AIT for AR should NOT be initiated unless there are unusual circumstances
- For inhalant AIT, consider lengthening intervals between injections or suspending AIT during Covid-19 crisis
- VIT for systemic reactions should be initiated or maintained
- Initiate or convert existing biological therapy to home administration with visiting healthcare services when feasible
- Home administration or AIT “represents a departure from general standards of care” but may be considered in special circumstances following shared decision making, e.g., VIT with safeguards in place
### Request by patients to administer allergy injections at home

<table>
<thead>
<tr>
<th>Have you had patients request to have their SCIT be given at home instead of coming to the office? (N=369)</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>164</td>
<td>44.4%</td>
</tr>
<tr>
<td>No</td>
<td>205</td>
<td>55.6%</td>
</tr>
</tbody>
</table>

If you answered yes to Q12, did you allow the patient(s) to take their vial home for administration? (n=172)

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23</td>
<td>13.4%</td>
</tr>
<tr>
<td>No</td>
<td>149</td>
<td>86.6%</td>
</tr>
</tbody>
</table>
Telehealth 1st Choice!

- Conduct as many patient visits as possible via Telehealth:
  - When option exists & is financially feasible for patient and practice
  - During times when COVID-19 transmission risk remains high
  - Until minimal PPE is required for safe in-office visits
  - Until there is reduced need for social distancing
  - Until overall risk of COVID-19 transmission in office is low
AACA1 Survey on Practice Changes: Visit type

Current visit type for all allergy offices (n= 359)

- % in-person visits: 31%
- % Telephone (audio only) visits: 13%
- % Telemedicine (audio and visual) visits: 57%

Survey 4/24 - 5/3/2020
CDC Proposed a **Phase 1, 2, 3 Reentry** for Region/State

- Criteria (suggested) to meet before Phase 1 (based upon up-to-date data):

  - Downward trajectory of documented cases within a 14-day period
  - Hospitals able to treat all patients without crisis care and have ability to surge ICU capacity, adequate PPE current/future
  - Robust testing program in place for at-risk healthcare workers, including emerging antibody testing
  - Test symptomatic persons and trace all contacts
  - Sentinel surveillance sites for screening asymptomatic cases
  - Employers provide social distancing/PPE, temperature checks, testing, contact tracing, isolation, sanitation & disinfection, symptomatic workers not present

- Three weeks between Phase 1, 2, and 3
Phased reentry into practice in the allergy office

**Phase 1 rollout:** Community Infection Risk Remains High
- Local government lifting of restrictions for some ambulatory & nonessential services
- Limited community-wide testing but adequate PPE for office setting
- Vulnerable individuals to continue to “shelter-in-place”

**Phase 2 rollout:** Community Infection Risk Moderate (Declining/Stable)
- Local government opening up work/businesses/non-essential travel with limitations
- Increased availability of testing/contact tracing
- Community/office PPE remain adequate & remain in use by staff/patients

**Phase 3 rollout:** Community Infection Risk Low
- Local government has few/no restrictions to work/business/school/travel
- Return to “near normal” office functioning with continued option for telehealth
- Less social distancing and PPE required in office—still use for high-risk procedures

**Phase 4 rollout:** Post-pandemic/”Normal” Operations
- Vaccine/herd immunity present and low community transmission rate
Ideal prerequisites for restoring in-office patient visits

1. Accurate ongoing assessment of the current level of local community transmission

2. An effective patient and staff screening process (prior to visit) to assess risk of symptomatic or asymptomatic SARS-CoV-2 infection

3. A sustainable supply of PPE—viewing all patients/staff as potentially COVID-19 positive—patients/staff/professionals all wear facial covering

4. Consider all pts as asymptomatic shedders and use full PPE, e.g., gown, gloves, N95 respirator plus face shield (or goggles), shoe coverings for aerosol generating procedures. Consider full PPE for young children (crying struggling) undergoing procedures, e.g., skin testing, AIT.

5. Adequate availability of rapid, accurate SARS-CoV-2 testing (at community level) for assessing patients/staff who may be infected

6. Accurate assessment of the degree to which a patient (or staff member) may be at increased risk for severe or life-threatening COVID-19
Ideal prerequisites for restoring in-office patient visits (continued)

7. Modify the environmental dynamics of an office space for reduced disease transmission, including creating an isolation area for COVID-19 positive patients

8. Implementation of social distancing (6 ft or greater) for patients and staff throughout the office—both staff work and patient care areas

9. Developing office protocols for how to effectively and efficiently clean and disinfect all areas of the office between patients

10. Develop staff schedules with contingency planning for illness, exposure, child-care, etc.

11. Consider self-quarantine of asymptomatic healthcare providers following unprotected exposure to COVID-19 sick patients or family members
Office Personal Protective Equipment

What type of PPE are you routinely using during the COVID-19 pandemic? (Check all that apply) (n=314)

<table>
<thead>
<tr>
<th>PPE Type</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical masks</td>
<td>274</td>
<td>87.3%</td>
</tr>
<tr>
<td>Gloves</td>
<td>245</td>
<td>78.0%</td>
</tr>
<tr>
<td>N95 respirators</td>
<td>163</td>
<td>51.9%</td>
</tr>
<tr>
<td>Eye protection</td>
<td>127</td>
<td>40.4%</td>
</tr>
<tr>
<td>Gowns</td>
<td>72</td>
<td>22.9%</td>
</tr>
<tr>
<td>Other</td>
<td>34</td>
<td>10.8%</td>
</tr>
</tbody>
</table>

Has your office been able to maintain an adequate supply of adequate supply of PPE? (n=315)

- Yes: 33.3%
- No: 66.7%
Strategy for entering “Shelter in Place”

Management based upon level of acuity

Strategy for ending “shelter in place” and reentry into practice
## Highest Acuity Conditions

<table>
<thead>
<tr>
<th>Allergic Condition</th>
<th>Specific circumstance and/or disease characteristic</th>
</tr>
</thead>
</table>
| Anaphylaxis                              | • New onset (last 6-12 months) or recurrent anaphylaxis  
• Suspected systemic or established active mastocytosis that is unstable |
| Asthma                                    | Within past 3-6 months one of these applies:  
• ED visit or hospitalization  
• ≥2 oral steroid courses  
• ≥1 dose escalation(s)/addition(s) of any daily controller medication |
| Drug/Vaccine Allergy                     | Drug/vaccine allergy with an urgent or critical need for evaluation and/or delabeling, drug challenge |
| Food Allergy, including FPIES/EoE        | New onset of 1st or additional food allergy within last 3-6 months, clear trigger/history |
| Immunodeficiency/Immune Dysregulation/Blood Cell Disorder | Newly identified but untreated severe combined immunodeficiency (SCID), combined immunodeficiency (CID), or critical B cell defect |
| Skin/Other                               | New patient visits for suspected severe, potentially life-threatening angioedema |

Note: Modified table from May 21, 2020 publication
<table>
<thead>
<tr>
<th>Allergic Condition</th>
<th>Specific circumstance and/or disease characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergic Rhinoconjunctivitis/Sinusitis</td>
<td>• Acute sinusitis not responding to initial antibiotic Tx</td>
</tr>
<tr>
<td></td>
<td>• Chronic sinusitis patients, AERD, nasal polyposis on biologic controller therapy or pending nasal polypectomy</td>
</tr>
<tr>
<td>Anaphylaxis</td>
<td>• New visit for anaphylaxis occurring &gt;1 year ago</td>
</tr>
<tr>
<td>Asthma</td>
<td>• Chronically uncontrolled symptoms based on impairment</td>
</tr>
<tr>
<td>Food Allergy</td>
<td>• Children entering into kindergarten or preschool with food allergy that will influence classroom/school policy</td>
</tr>
<tr>
<td></td>
<td>• OIT updosing for patients on treatment (following interruption due to pandemic)</td>
</tr>
<tr>
<td>Immunodeficiency/Immune Dysregulation/Blood Cell Disorder</td>
<td>• Hypereosinophilia of &gt;6 months duration without suspected end-organ dysfunction</td>
</tr>
<tr>
<td>Skin/Other</td>
<td>• New or follow up visits for refractory urticaria</td>
</tr>
<tr>
<td>Immunotherapy (SCIT, SLIT, OIT)</td>
<td>• Maintenance IT visits/resumption</td>
</tr>
<tr>
<td></td>
<td>• Case-by-case initiation of new IT can be considered</td>
</tr>
</tbody>
</table>

Note: Modified table from May 21, 2020 publication
### Low Acuity Conditions

<table>
<thead>
<tr>
<th>Allergic Condition</th>
<th>Specific circumstance and/or disease characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergic Rhinoconjunctivitis/Sinusitis</td>
<td>• AR and/or sinusitis with poor control of symptoms despite multiple medications</td>
</tr>
<tr>
<td>Anaphylaxis</td>
<td>• Annual routine follow-up for recurrent anaphylaxis</td>
</tr>
<tr>
<td>Asthma</td>
<td>• Asthma that is well-controlled in the past 6-12 months</td>
</tr>
<tr>
<td>Drug/Vaccine Allergy</td>
<td>• Proactive penicillin delabeling</td>
</tr>
<tr>
<td>Food Allergy</td>
<td>• New evaluation/updosing for oral immunotherapy</td>
</tr>
<tr>
<td>Immunodeficiency/Immune Dysregulation/Blood Cell Disorder</td>
<td>• Patients with a history of recurrent, common infections without severe manifestation</td>
</tr>
<tr>
<td>Skin/other</td>
<td>• New or established patients with mild atopic dermatitis</td>
</tr>
<tr>
<td></td>
<td>• Evaluation or follow up for allergic contact dermatitis</td>
</tr>
<tr>
<td>Immunotherapy (SCIT, SLIT, OIT)</td>
<td>• Initiation of all forms of new IT</td>
</tr>
</tbody>
</table>

Note: Modified table from May 21, 2020 publication
Many COVID-19 Unknowns

Will there be affordable, wide-spread testing to determine active COVID-19?
Is effective universal contact tracing achievable?
Will herd immunity occur (without a vaccine)?
Will there be major 2\textsuperscript{nd} and 3\textsuperscript{rd} waves of COVID-19?
Is there short or long-term immunity after recovery from COVID-19?
What is the value of mass antibody testing for COVID-19?
What is the real morbidity and mortality rate?
Who is at high, medium, and low risk for severe morbidity and mortality?
What is the minimal PPE and safety measures needed to prevent 95\% of disease spread?
What is the time-line for effective and safe vaccine development (if this is possible) and administration world-wide?
Which drugs are effective for treatment of COVID-19?
“It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.”

*Charles Darwin*
HOW TO RUN AN ACADEMIC ALLERGY UNIT DURING COVID-19 PANDEMIC

Giacomo Malipiero

DISCUSSION

Walter Canonica
COVID-19: pandemic or pandemics?

Admissions for Myocardial Infarction During Covid-19 Pandemic in Italy
Number of Patients admitted in one week

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>2019</th>
<th>2020</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMI</td>
<td>618</td>
<td>319</td>
<td>-48.4%</td>
</tr>
<tr>
<td>STEMI</td>
<td>319</td>
<td>197</td>
<td>-26.5%</td>
</tr>
<tr>
<td>NSTEMI</td>
<td>350</td>
<td>122</td>
<td>-65.1%</td>
</tr>
</tbody>
</table>

European Heart Journal (2020) 0, 1–6 doi:10.1093/eurheartj/ehaa409
<table>
<thead>
<tr>
<th>Service Line</th>
<th>2019</th>
<th>2020</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmology</td>
<td>81%</td>
<td>76%</td>
<td>-5%</td>
</tr>
<tr>
<td>Spine</td>
<td>76%</td>
<td>75%</td>
<td>-1%</td>
</tr>
<tr>
<td>Gynecology</td>
<td>75%</td>
<td>74%</td>
<td>-1%</td>
</tr>
<tr>
<td>Orthopedics</td>
<td>74%</td>
<td>72%</td>
<td>-2%</td>
</tr>
<tr>
<td>ENT</td>
<td>72%</td>
<td>68%</td>
<td>-4%</td>
</tr>
<tr>
<td>Dermatology</td>
<td>67%</td>
<td>64%</td>
<td>-3%</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>67%</td>
<td>66%</td>
<td>-1%</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>66%</td>
<td>66%</td>
<td>0%</td>
</tr>
<tr>
<td>Neurosciences</td>
<td>66%</td>
<td>66%</td>
<td>0%</td>
</tr>
<tr>
<td>General Medicine</td>
<td>66%</td>
<td>64%</td>
<td>-2%</td>
</tr>
<tr>
<td>Urology</td>
<td>62%</td>
<td>62%</td>
<td>0%</td>
</tr>
<tr>
<td>Genetics</td>
<td>60%</td>
<td>59%</td>
<td>-1%</td>
</tr>
<tr>
<td>Vascular</td>
<td>59%</td>
<td>58%</td>
<td>-1%</td>
</tr>
<tr>
<td>Hepatology</td>
<td>58%</td>
<td>57%</td>
<td>-1%</td>
</tr>
<tr>
<td>Cardiology</td>
<td>57%</td>
<td>56%</td>
<td>-1%</td>
</tr>
<tr>
<td>Pulmonology</td>
<td>56%</td>
<td>55%</td>
<td>-1%</td>
</tr>
<tr>
<td>Breast Health</td>
<td>55%</td>
<td>55%</td>
<td>0%</td>
</tr>
<tr>
<td>General Surgery</td>
<td>54%</td>
<td>52%</td>
<td>-2%</td>
</tr>
<tr>
<td>Nephrology</td>
<td>52%</td>
<td>49%</td>
<td>-3%</td>
</tr>
<tr>
<td>Hematology</td>
<td>49%</td>
<td>48%</td>
<td>-1%</td>
</tr>
<tr>
<td>Allergy &amp; Immunology</td>
<td>48%</td>
<td>45%</td>
<td>-3%</td>
</tr>
<tr>
<td>Behavioral Health</td>
<td>45%</td>
<td>44%</td>
<td>-1%</td>
</tr>
<tr>
<td>Burns &amp; Wounds</td>
<td>44%</td>
<td>44%</td>
<td>0%</td>
</tr>
<tr>
<td>Cancer</td>
<td>37%</td>
<td>30%</td>
<td>-7%</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>30%</td>
<td>23%</td>
<td>-7%</td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>23%</td>
<td>20%</td>
<td>-3%</td>
</tr>
<tr>
<td>Neonatology</td>
<td>20%</td>
<td>4%</td>
<td>-16%</td>
</tr>
<tr>
<td>Not Assigned</td>
<td>4%</td>
<td>2%</td>
<td>-2%</td>
</tr>
<tr>
<td>Normal Newborn</td>
<td>2%</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Model examined YoY comparison for a 2 week period (March 24 - April 6, 2019 and March 22 - April 4, 2020)

Clinical Communications

Appointment characteristics in an allergy/immunology practice in the immediate aftermath of COVID-19 restrictions
Allison Ramsey, MD\textsuperscript{a,b}, Luanna Yang, MD\textsuperscript{a},
Karthik Vadmalai, MD\textsuperscript{c}, and S. Shahzad Mustafa, MD\textsuperscript{a,b}

Clinical Implications

- In the first 3 weeks of coronavirus disease 2019 restrictions, 45% of scheduled patients cancelled, with remaining patients evaluated by telephone (36%), telemedicine (17%), and in person (2%). Follow-up visits were more likely to be considered to be adequate than new patient visits.
Possible coronavirus wave scenarios

**Scenario 1: Peaks & valleys**

COVID-19 cases

**Scenario 2: Fall peak**

COVID-19 cases

**Scenario 3: Slow burn**

COVID-19 cases
An academic allergy unit during COVID-19 pandemic in Italy

Conversely, mild-to-moderate well-controlled patients were transitioned to a digital medicine service including phone, video, and email consults.

The administration of biologicals was managed as follows. Omalizumab and benralizumab were self-administered at home. A service for drug home delivery was activated. Conversely, Severe Asthma Network in Italy was used to identify a local near-home center for in-site administration.

Academic activities were rescheduled, and only online interactive platforms were used to keep educational programs ongoing.

Digital Medicine

Biologics: home delivery

Biologics: referral to SANI Centers

Online Platform

Malipiero et al. JACI 2020
Available online April 8
Relevant for all diseases

- Consider severe psychological disturbance due to symptoms: evidence for sociopsychological impairment and suicide risk (section "Socio-psychological considerations for allergic patients and optimal care during and after the pandemic")

- Evidence for incorrect usage of prescribed medication and non-adherence, which requires in-person training

- These recommendations are primarily for patients with severe clinical phenotypes who do not have the capacity to interact in a virtual setting

Proposed criteria for in-person consultation

Pfaar et al. Allergy 2020
III. Care of allergic patients: preclinical setting and triage of patients

- Delay elective ambulatory provider visits
  - Assess the patient’s ability and resources to engage in home monitoring
  - Select, based on proper screening protocols, the patients needing direct consultation based on proper screening protocols
  - Re-schedule any non-essential procedure that might impact on the safety of the patient and the HCP (e.g. lung function testing, airways samplings, rhinoscopy, surgery, drug/food/venom provocation tests)

- Implement remote health care tools
IV. Challenges and Chances of Information Technology (IT)

Figure 2: Remote communication between the HCP and patients. EHR, Electronic Health record
V. Clinical Setting

1. General hygiene rules
2. Entrance to the Clinic
3. Staff organization
4. Patient traffic organization
5. In the consultation room
Announcing a special WISC 2020 Pre-Conference Event "Allergy and COVID-19"
4 June 2020  Time: 6:00-10:30 EDT/ 12:00-16:30 CEST/ 19:00-23:30 JST

INTRODUCTION
Motohiro Ebisawa

COVID-19: A DISEASE THAT KNOWS NO BORDERS
Bryan Martin

DISCUSSION
Sandra Gonzalez-Diaz

COULD ALLERGY PROTECT FROM COVID-SARS2 INFECTION?
Daniel J Jackson

DISCUSSION
Alessandro Fiocchi

IMMUNOPATHOGENESIS OF COVID-SARS2 INFECTION
Rita Carsetti

DISCUSSION
José Antonio Ortega-Martell

ADVISE POLITICIANS IN A PANDEMICERA: THE ITALIAN GOVERNMENTAL COVID TASK FORCE EXPERIENCE
Alberto Villani

DISCUSSION
Peter Hellings

MANAGING ALLERGIC RHINITIS IN COVID-19-SARS2 ERA
Jean Bousquet

DISCUSSION
Philip W. Rouadi

MANAGING ASTHMA IN COVID-19-SARS2 ERA
Michael Levin

DISCUSSION
Gary Wong

MANAGING BIOLOGICS IN COVID-19-SARS2 ERA
Mario Morais-Almeida

DISCUSSION
Jonathan A. Bernstein

HANDLING OF ALLERGEN IMMUNOTHERAPY IN THE COVID-19 PANDEMIC
Ignacio Ansotegui

DISCUSSION
Gianni Passalacqua

PANDEMIC CONTINGENCY PLANNING FOR YOUR ALLERGY AND IMMUNOLOGY CLINIC
Dana Wallace

DISCUSSION
David Peden

HOW TO RUN AN ACADEMIC ALLERGY UNIT DURING COVID-19 PANDEMIC
Giacomo Malipiero

DISCUSSION
Walter Canonica

CONCLUSION
Motohiro Ebisawa
Allergy care does not stop with COVID-19

World Allergy Week 2020
28 June - 4 July
JSA/WAO Joint Congress 2020

JSA/WAO XXVII World Allergy Congress (WAC 2020) conjoint with the APAPARI 2020 Congress

September 17-20, 2020
Kyoto, Japan

Congress President: Motohiro Ebisawa (Sagamihara National Hospital, Japan)
Venue: Kyoto International Conference Center, Kyoto

Please visit our website! http://www.c-linkage.co.jp/jsawac2020/
WORLD ALLERGY ORGANIZATION JOURNAL
Open Access for Global Allergy

Editors-in-Chief:
Alessandro Fiocchi, MD
Erika Jensen-Jarolim, MD

www.WAOJournal.org
WEBINAR live

Thank you

JUNE 4TH, 2020

6:00-10:30 EST  12:00-16:30 CET  19:00-23:30 JST

PROGRAMME

SPECIAL SESSION – IN VIEW OF WISC: ALLERGY & COVID