

## Special Article

# A Phased Approach to Resuming Suspended Allergy/Immunology Clinical Services

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**In early 2020, the first US and Canadian cases of the novel severe acute respiratory syndrome coronavirus 2 infection were detected. In the ensuing months, there has been rapid spread of the infection. In March 2020, in response to the virus, state/provincial and local governments instituted shelter-in-place orders, and nonessential ambulatory care was significantly**

**curtailed, including allergy/immunology services. With rates of new infections and fatalities potentially reaching a plateau and/or declining, restrictions on provision of routine ambulatory care are lifting, and there is a need to help guide the allergy/immunology clinician on how to reinstate services. Given the fact that coronavirus disease 2019 will circulate within our**

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*Abbreviations used**CDC- Centers for Disease Control and Prevention**COVID-19- Coronavirus disease 2019**PPE- Personal protective equipment**SARS-CoV-2- Severe acute respiratory syndrome coronavirus 2*

**communities for months or longer, we present a flexible, algorithmic best-practices planning approach on how to prioritize services, in 4 stratified phases of reopening according to community risk level, as well as highlight key considerations for how to safely do so. The decisions on what services to offer and how fast to proceed are left to the discretion of the individual clinician and practice, operating in accordance with state and local ordinances with respect to the level of nonessential ambulatory care that can be provided. Clear communication with staff and patients before and after all changes should be incorporated into this new paradigm on continual change, given the movement may be forward and even backward through the phases because this is an evolving situation. © 2020 American Academy of Allergy, Asthma & Immunology (J Allergy Clin Immunol Pract 2020;■:■-■)**

**Key words:** SARS-CoV-2; COVID-19; Allergy; Immunotherapy; Asthma; Food allergy; Allergic rhinitis; Primary immunodeficiency; Urticaria; Angioedema; Atopic dermatitis; Personal protective equipment

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**INTRODUCTION**

In early 2020, the first US and Canadian cases of the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection were detected.<sup>1,2</sup> In the ensuing months, there has been rapid spread of the infection in the United States, with more than 1,350,000 cases and more than 81,000 fatalities, and in Canada, more than 70,000 cases and more than 5,000 fatalities, both as of May 12, 2020.<sup>3-5</sup> With an  $R_0 = 3$  (eg, for every 1 person infected, it will spread to 3 others) and asymptomatic transmission evident, strict social/physical distancing protocols at local, state, and federal levels were enacted.<sup>6-9</sup> No proven effective treatment has been identified, and a vaccine for widespread use is not yet available. In response to the virus, state/provincial and local governments instituted shelter-in-place orders, and nonessential ambulatory care was significantly curtailed. This included either outright cancellation or considerable prioritization of allergy/immunology services.<sup>2,10,11</sup> Guidance on how to scale down services in the setting of the coronavirus disease 2019 (COVID-19) pandemic was recently published in mid-March, supported by the American Academy of Allergy, Asthma & Immunology, the American College of Allergy, Asthma and Immunology, and the Canadian Society of Allergy and Clinical Immunology jointly.<sup>2</sup> At the time of this writing, rates of new infections and fatalities may be reaching a plateau and/or declining to levels where some state and local municipalities are now lifting shelter-in-place orders, with or without “safer-at-home” or other less restrictive orders, though in certain areas, the infection rate may not yet have peaked.<sup>12,13</sup> Correspondingly, restrictions on the provision of routine ambulatory care will likely be lifted. Although there may be oscillation between shelter-in-place and safer-at-home orders over the next

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several months because additional waves of the virus may occur, there is a need to help guide the allergy/immunology clinician on how to reinstate services. Similar to other epidemic forms of coronavirus and viral pandemics, it is expected that COVID-19 will circulate within our communities for months or longer.<sup>14</sup> As such, it is essential that we stratify the provision of services and develop a plan for how to increase or decrease service capacity. Although some visits for allergic conditions, such as allergic rhinitis and proactive medication allergy delabeling, can be reasonably delayed, others such as primary immunodeficiency, infant food allergy, Hymenoptera-induced anaphylaxis, medication allergy limiting current necessary therapy, and moderate to severe asthma cannot afford long-term delay. Herein, we present an algorithmic approach on how to prioritize such visits and services. Recognizing that there are variable economic considerations involved in decisions regarding restarting in-person clinical care, this report is focused singularly on the logistical restart of in-person care. We emphasize that these are not evidence-based guidelines, but rather guidance in the form of consensus-based best-practice recommendations from a diverse North American group of academic and private practice allergy/immunology specialists, as an organized discussion of the issues and potential approaches to opening up a clinical allergy/immunology practice after having reduced services or shut down because of COVID-19.

### ASSESSING KEY SYSTEM CONSTRAINTS

While making a decision to reinstate services, there is an essential need to have certain key information to assess infrastructure capacity and safety concurrently. Future variables that may affect these decisions include optimizing efficient and effective contact tracing, development of a vaccine, the potential for herd immunity, and acquiring firmer evidence that there is individual long-lasting immunity postinfection. Part of the difficulty is accurate forecasting of the level at which community transmission is ongoing and being able to detect new cases in real time before such persons expose others.<sup>3,15</sup> This presents a unique challenge to the clinician, because many patients may be asymptomatic or presymptomatic during the office visit.<sup>7</sup> As such, reinstatement decisions also involve balancing supply and usage of personal protective equipment (PPE).<sup>16,17</sup> Therefore, when considering restoring in-person patient visits, a few constraints are essential to understand and be able to implement:

1. Accurate ongoing assessment of the current level of local community transmission of SARS-CoV-2 (low, medium, high).
2. A sustainable supply of PPE that can reduce the risk of SARS-CoV-2 transmission to the greatest extent possible, a plan for providing PPE for patient visits, and ongoing reassessments of best practices regarding PPE as new evidence emerges on SARS-CoV-2 transmission.<sup>18,19</sup>
3. An effective patient and staff screening process to assess the risk of symptomatic or asymptomatic SARS-CoV-2 infection.
4. Adequate availability of rapid, accurate SARS-CoV-2 testing (reverse transcriptase-PCR for viral load assessment and serologic assessment for evidence of antibody formation) with appropriate PPE available to assess whether a patient with an upcoming or recent visit/procedure is potentially infected, or to assess staff scheduled to work.

5. Accurate understanding of the degree to which a patient (or staff member) may be at risk for severe or life-threatening COVID-19.
6. Implementation of recommendations for reducing patient density and achieving distancing requirements with respect to waiting rooms and patient care rooms and minimizing close contact time per encounter to reduce transmission risk.
7. Determining (and potentially creating) the patient isolation capabilities within an office space, as well as reducing the environmental dynamics of an office space that may contribute to transmission risk.
8. Developing office protocols for how to effectively and efficiently clean and disinfect a room after each visit, which products to use, and time between cleaning before a room again becomes available.
9. Calculating the allowable number of staff who are permitted to work in a fixed space with respect to workrooms, charting, allergen extract mixing, supervision, and so forth to safely optimize clinic space utilization and maintain social/physical distancing, including family members accompanying patients to visits.
10. Determining staff availability for scheduling (eg, based on high-risk conditions and childcare needs).

As the spread and burden of the pandemic has been variable with regard to geographic locations and demographic groups, approaches for one practice or area may be more or less applicable to another, as was the case with recommendations on how to scale down services.<sup>2</sup> However, the essential concepts should remain universally applicable.

### GENERAL GUIDING PRINCIPLES

These are unprecedented times and circumstances, currently framed by uncertainty due to limited data concerning SARS-CoV-2 and the current political and economic influences that may be motivating local, state, and national policies. This makes already difficult decision making even more challenging. All situations have trade-offs, and as society begins modifying mitigation responses, the threshold for where the risk of continuing to defer management of the patient's underlying medical conditions exceeds the risk of infection transmission may begin to change, and we have a continuing duty to adapt to the needs of our patients. In this context, there are common goals of providing all necessary care and doing so safely. Unfortunately, the risk of SARS-CoV-2 transmission will likely exist for the foreseeable future. Therefore, as services are restored, safety cannot be entirely guaranteed, even with use of PPE and screening.<sup>20</sup> Patients, clinicians, and office staff need to be vigilant to minimize the risk of office-based SARS-CoV-2 transmission. A new normal (or "abnormal") exists, where practices are tasked with minimizing the risk of transmission to their staff as a top priority, given the potential risk of care disruption if the health care workforce becomes sick. So long as current restrictions regarding the practice of telehealth remain relaxed, very strong consideration should be given to conducting as many visits as possible via telehealth where this option exists, as well as continuing this practice until current risk levels decline such that requirements for PPE and social/physical distancing are significantly relaxed and the risk of acquiring infection in an office in which appropriate precautions are in place is reduced.<sup>2,21,22</sup> Such guidance is in accordance with recommendations of the Centers

**TABLE I.** An approach to priority ranking of in-person allergy clinic visits and services

<b>Highest acuity</b>	
<b>Allergic condition</b>	<b>Specific circumstance and/or disease characteristic</b>
Allergic rhinoconjunctivitis/sinusitis	<ul style="list-style-type: none"> <li>• No circumstance or characteristic meets this priority</li> </ul>
Anaphylaxis	<ul style="list-style-type: none"> <li>• New onset in last 6 months: recurrent anaphylaxis &gt;2 episodes in past year (unless seen by another allergist and stable in the past 3 months, or seen as an inpatient consult and stable and this is the visit to establish care)</li> <li>• New-onset anaphylaxis in last 6-12 months, with very clear trigger (eg, venom and perioperative, seminal fluid)</li> <li>• Suspected systemic mastocytosis with elevated tryptase, 1 or more episodes in the past 6 months, and evidence of cytopenia</li> <li>• Established systemic mastocytosis patients experiencing breakthrough anaphylaxis</li> </ul>
Asthma	<ul style="list-style-type: none"> <li>• Patients with asthma of any severity who have required ED care or have been hospitalized for an exacerbation within the past 3-6 months, have received <math>\geq 2</math> oral steroid courses in the past 3-6 months, or have required <math>\geq 1</math> dose escalation(s)/addition(s) of any daily controller medication in the past 3-6 months</li> </ul>
Drug/vaccine allergy	<ul style="list-style-type: none"> <li>• Drug/vaccine allergy patient (including aspirin) where there is an urgent or critical need for evaluation and/or delabeling, drug challenge, or desensitization in the next few weeks or months</li> </ul>
Food allergy, including FPIES/EoE	<ul style="list-style-type: none"> <li>• New-onset index reaction occurring within last 3-6 months, clear trigger/history</li> <li>• New-onset additional food in established patient occurring within last 3-6 months, clear trigger/history</li> <li>• Early peanut introduction if meeting NIAID addendum 1 criteria (severe eczema and/or egg allergy) for early peanut introduction to prevent peanut allergy</li> <li>• Infant in first year of life with allergy to 1 or more 8 common foods where misdiagnosis is suspected and food being withheld (eg, panel avoidance for eczema) or there is question of formula tolerance</li> </ul>
Immunodeficiency/immune dysregulation/blood cell disorder	<ul style="list-style-type: none"> <li>• Newly identified SCID, combined immunodeficiency, or critical B-cell defect (agammaglobulinemia or severe hypogammaglobulinemia) patient at risk for recurrent, life-threatening infections that may/will require immunoglobulin replacement therapy, antimicrobial prophylaxis, protective isolation, and/or other related therapies</li> <li>• Newly identified severe congenital neutropenia and bone marrow failure syndrome patients</li> <li>• Newly identified patients with defects of phagocyte function and motility (eg, chronic granulomatous disease and leukocyte adhesion deficiency)</li> <li>• Newly identified patients with primary immune regulatory disorders, autoinflammatory disorders, complement deficiencies, and select innate immune defects in which prompt therapeutic interventions are warranted</li> <li>• Newly identified patients with hypereosinophilic syndromes and accompanying end-organ involvement</li> <li>• Follow-up of conditions listed above if remote (telehealth) care is insufficient to meet needs of the patient</li> <li>• Follow-up of abnormal newborn screens that are highly suggestive of SCID</li> </ul>
Skin/other	<ul style="list-style-type: none"> <li>• New patient visits for particularly severe cases of suspected angioedema, such as events with pharyngeal/laryngeal edema, abdominal or genital involvement</li> <li>• New or follow-up visits with severe atopic dermatitis (on high-potency topical corticosteroids, on alternative anti-inflammatory topical therapy, history of superinfections, significant negative impact of skin on quality of life, infants with extensive body surface area involvement, candidates for biologic therapy)</li> </ul>
<b>Moderate acuity</b>	
<b>Allergic condition</b>	<b>Specific circumstance and/or disease characteristic</b>
Allergic rhinoconjunctivitis/sinusitis	<ul style="list-style-type: none"> <li>• Acute sinusitis not responding to initial antibiotic where imaging and/or culture/referral is being considered and telehealth is not an option</li> <li>• Patients with chronic sinusitis, AERD, or nasal polyposis who are on biologic controller therapy or those pending nasal polypectomy</li> </ul>
Anaphylaxis	<ul style="list-style-type: none"> <li>• New visit for anaphylaxis occurring &gt;1 year ago</li> <li>• Suspected systemic mastocytosis with elevated tryptase but no evidence of cytopenia, 1 or more episodes in the past 6 months</li> <li>• Established patients with mastocytosis experiencing new-onset symptoms or symptoms breaking through current controller medications</li> </ul>
Asthma	<ul style="list-style-type: none"> <li>• Patients with asthma of any severity who have required ED care or have been hospitalized for an exacerbation within the past 6-12 months, have received <math>\geq 2</math> oral steroid courses in the past 6-12 months, or have required <math>\geq 1</math> dose escalation(s)/addition(s) of any daily controller medication in the past 6-12 months</li> <li>• Patients with chronically uncontrolled symptoms based on impairment</li> <li>• Patients with history of poor control in upcoming season</li> </ul>

(continued)

TABLE I. (Continued)

Moderate acuity	
Allergic condition	Specific circumstance and/or disease characteristic
Food allergy	<ul style="list-style-type: none"> <li>• Children entering into kindergarten in the fall (or younger) with food allergy that will influence classroom/school policy</li> <li>• OIT up dosing on patients in whom therapy was initiated, with some build up, but was held because of the pandemic</li> </ul>
Immunodeficiency/immune dysregulation/blood cell disorder	<ul style="list-style-type: none"> <li>• Patients with a history of recurrent/severe infections or autoimmune/autoinflammatory complications not requiring inpatient management, but for whom an evaluation is time-sensitive (yet not urgent/emergent)</li> <li>• Hypereosinophilia of &gt;6-month duration with no suspected end-organ dysfunction</li> </ul>
Skin/other	<ul style="list-style-type: none"> <li>• New or follow-up visits for refractory urticaria with evidence of failed first-line management</li> <li>• Visits for new-onset or less-severe angioedema</li> <li>• New or established patients with moderate atopic dermatitis (on moderate potency topical corticosteroids)</li> <li>• Established urticaria pigmentosa with history of rising tryptase level or other indicator of possible systemic involvement</li> </ul>
Immunotherapy (SCIT, SLIT, OIT)	<ul style="list-style-type: none"> <li>• Maintenance IT visits/resumption</li> <li>• Case-by-case initiation of new IT can be considered, but only if benefits are strongly outweighing risks of therapy</li> </ul>
Lower acuity	
Allergic condition	Specific circumstance and/or disease characteristic
Allergic rhinoconjunctivitis/sinusitis	<ul style="list-style-type: none"> <li>• Patients with chronic sinusitis, AERD, or nasal polyposis except for those on in-person biologic therapy or those pending nasal polypectomy</li> <li>• Patients with poor control of symptoms (including sleep disruption or reduced quality of life) despite multiple medications (ie, candidates for potential future immunotherapy, with the understanding that new starts may not be possible and/or symptoms will not immediately respond)</li> <li>• Patients who have previously seen other specialists and allergy evaluation was recommended to optimize allergy symptom control</li> </ul>
Anaphylaxis	<ul style="list-style-type: none"> <li>• Annual follow-up for recurrent anaphylaxis if stable</li> <li>• Second opinion for anaphylaxis if stable</li> <li>• Follow-up for systemic mastocytosis if has been stable in the past 12 months</li> </ul>
Asthma	<ul style="list-style-type: none"> <li>• Patients with asthma of any severity who have been well controlled in the past 6-12 months, including no record of ED visits, who have had <math>\leq 1</math> oral steroid burst or hospitalization in the immediate 6 months, or <math>\leq 2</math> exacerbations in the past year</li> <li>• Routine follow-up visits with any patient with mild to moderate or well-controlled asthma</li> </ul>
Drug/vaccine allergy	<ul style="list-style-type: none"> <li>• New-onset evaluation for reaction occurring &gt;1 year ago</li> <li>• Proactive penicillin delabeling with no imminent therapeutic need</li> <li>• Other drug/vaccine evaluation for reported/suspected allergic reaction</li> <li>• Second opinion for penicillin allergy with no readministration plan in next 6 months</li> </ul>
Food allergy	<ul style="list-style-type: none"> <li>• New evaluation of a food allergy occurring &gt;1 year previously</li> <li>• New-onset EoE not seen by GI or newly diagnosed EoE seen by GI with or without impaction history</li> <li>• Second/additional opinions not meeting aforementioned prioritization</li> <li>• Allergic proctocolitis</li> <li>• New evaluation, any duration, dye or other 8 noncommon/seed allergen (eg, atypical culprits such as fruit, vegetable, and meat)</li> <li>• New evaluation/updosing for oral immunotherapy</li> </ul>
Immunodeficiency/immune dysregulation/blood cell disorder	<ul style="list-style-type: none"> <li>• Patients with a history of recurrent, common infections without severe manifestations</li> <li>• New evaluation of patients with mildly/moderately low immunoglobulin levels, mild/moderate cytopenia, or another similar mild/moderate finding, in which there is no history of severe or otherwise worrisome infections</li> </ul>
Skin/other	<ul style="list-style-type: none"> <li>• History of intermittent or new-onset low to moderate eosinophilia of less than 6-months duration</li> <li>• New or follow-up visits for refractory urticaria except for those on in-office biologic therapy (who are higher acuity)</li> <li>• New or follow-up evaluation for cutaneous mast cell disorder</li> <li>• Ongoing evaluation of established urticaria</li> <li>• New or established patients with mild atopic dermatitis (currently on low-potency topical corticosteroids)</li> <li>• Suspected mast cell activation syndrome</li> <li>• Evaluation or follow-up for allergic contact dermatitis</li> </ul>
Immunotherapy (SCIT, SLIT, OIT)	<ul style="list-style-type: none"> <li>• Maintenance IT visits/resumption</li> <li>• Initiation of all forms of new IT</li> </ul>

AERD, Aspirin-exacerbated respiratory disease; ED, emergency department; EoE, eosinophilic esophagitis; FPIES, food protein-induced enterocolitis syndrome; GI, gastrointestinal; IT, immunotherapy; NIAID, National Institute of Allergy and Infectious Diseases; OIT, oral immunotherapy; SCID, severe combined immunodeficiency; SCIT, subcutaneous immunotherapy; SLIT, sublingual immunotherapy.

for Disease Control and Prevention (CDC)<sup>23</sup> and the Government of Canada<sup>24</sup> regarding limiting in-person visits to medical providers, though such guidance is fluid and may evolve.

Much may have been learned already regarding the ability to effectively deliver care via telehealth, and telehealth need not be viewed as a secondary option moving forward, provided that payment parity and expanded guidelines continue. Parity is particularly important given reduced in-person clinical volumes. The rapid conversion to telehealth visits by many has demonstrated that this is an effective primary means of health care delivery. Many clinics will consider using a mix of in-person and virtual medicine to mitigate risk. In an environment with the uncertainty of infectious risk, telehealth can be maximized as a gatekeeper visit (provided regulations continue to be relaxed, permitting enhanced use of telehealth for new visits),<sup>21</sup> where problems can be discussed and a shared decision can be reached about the need for any in-person services, thereby reducing unnecessary exposure for patient, clinician, and staff, and conserving limited PPE reserves. Telehealth may also help prioritize the level of PPE that should be used for each encounter. The section below will present a hierarchical approach to prioritizing in-person visits as services reopen.

### Phased approach to resuming service

We recommend that service rollout occur in stages, allowing for time to monitor demand for in-person services, changes to the rate of community exposure to COVID-19, recommendations for and access to PPE, and staffing issues. Phasing is in accordance with national as well as many state and local plans to cautiously ease toward previous levels of service.<sup>12,25</sup>

**Phase 1 rollout: Community infection risk remains high.** This phase incorporates the initial reopening of previously curtailed services, where some (but not all) restrictions on ambulatory or nonessential medical care are lifted. Practices can consider resuming select face-to-face visits despite a high rate of community transmission of COVID-19 and lack of widespread availability of testing, *so long as PPE supply is adequate*, risk mitigation has been discussed with the staff, job roles are reviewed, and a modified, workable scheduling template has been created. Although face-to-face visits are resumed for medical problems with the highest acuity, telehealth should continue for all but the most necessary visits where a time-sensitive procedure is recommended, provided current telehealth expanded guidelines remain in place. At the time of scheduling, discussions with patients about potential risk and benefit of telehealth versus in-person visits, including the likelihood that particular services may be provided at the visit, should be initiated to help determine which visit format is most appropriate. New initiation of immunotherapy to allergens other than venom is still not recommended, although a modified schedule/protocol may be adapted for current immunotherapy patients on the basis of PPE supply and physical distancing capabilities. Spirometry is still contraindicated in most scenarios because of the aerosolization risk, except in highly individualized situations in which it would be essential for immediate treatment decisions that could not otherwise be made without such information and where it can be performed with appropriate precautions and room/equipment disinfection.<sup>26</sup> Office-based administration of biologics, as well as infusions, can be prioritized if home administration is not appropriate, possible, or desired. The highest priority should be

assigned to patients unable to connect for telehealth visits with conditions meeting more urgent/priority recommendations as detailed in [Tables I and II](#). Appropriate communication to all patients regarding new precautions must be conducted before their in-person visit. In addition, screening protocols should be established in accordance with current CDC, Health Canada, or local health department recommendations, and these protocols should be communicated with all office staff and reviewed regularly. Visits for skin testing and ingestion challenges that will lead to immediate changes in management/decision making can resume for the utmost priority conditions, but should be deferred in this phase for more moderate and lower acuity evaluations, in particular for routine nonurgent evaluation of allergic rhinoconjunctivitis. Patient-to-clinician contact under 6 ft must be minimized, and use of phone call/video visits to obtain key portions of the history, interpret the results of any procedures, formulate a plan, and answer patient questions should be strongly considered to help reduce direct face-to-face time. Patients should also be encouraged to provide as much information about medical history and current clinical concern before the visit to reduce in-office time. Patients who refuse to wear a facial covering as recommended by the CDC/Health Canada may be refused the opportunity to be seen for in-person visits, although this will depend on or be superseded by office or institutional policy.<sup>17,27</sup>

**Phase 2 rollout: Community infection risk declining/stable.** The second phase begins as there is a continued, noted plateau and/or decline in the community transmission of SARS-CoV-2 to a moderate risk level, in conjunction with increased availability and use of testing/contact tracing and more consistent achievement of criteria met to reopen previously restricted services per public health experts. Community and office PPE supply remains adequate in line with recommendations provided by the CDC/Health Canada. There are no changes to issues surrounding immunity from phase 1. Overall, although this phase represents a significant improvement from phase 1, it is still recommended to (1) continue maximizing telehealth for visits as long as that is a continued option under the expanded policies, (2) maintain limited face-to-face contact time and 6 ft of social/physical distancing as above, and (3) continue to strongly consider that no patient should be seen if they refuse to wear a facial covering as per CDC/Health Canada, Joint Commission, and local health department recommendations, to the degree office or institutional policy will allow. Shared decision making regarding preference for type of visit should be initiated, providing telehealth remains an option under expanded policies. High and moderate priority recommended services, including skin testing, food/drug challenges, and wait list patients unable to connect to telehealth, can be scheduled with a modified template accounting for the social/physical distancing recommendations and plan for rollout of resuming such procedures. Spirometry is still not recommended in most circumstances, outside of tests that would be essential for immediate treatment decisions, and where it can be performed with appropriate precautions and room/equipment disinfection and PPE.<sup>26</sup> Modifications made and/or protocols established for those currently on immunotherapy should be reviewed and optimized. Although venom immunotherapy can continue to be initiated, routine initiation of inhalant immunotherapy is not generally recommended in this phase, given required weekly face-to-face visits during the

**TABLE II.** Oral food/drug challenge or desensitization priority ranking, by indication

High priority	<ol style="list-style-type: none"> <li>1. Food challenges to 8 <i>common foods</i> (focus on milk, egg, peanut, wheat, soy, possibly fish) in infants &lt;18 months being done to allow reintroduction based on testing that dictated that the nutritionally relevant item be removed, or in older children with critical nutritional issue related to the food avoidance and a defined anaphylaxis risk precluding home introduction</li> <li>2. Drug/vaccine challenges to something that is of high probability of readministration in the next 3-4 months, in anticipation of an upcoming procedure, or will be associated with improved health care outcomes (eg, aspirin for secondary cardioprotection)</li> <li>3. Rapid drug desensitization for a patient with an IgE-mediated reaction to a medication required for a serious or life-threatening indication, without an equivalent therapeutic alternative</li> <li>4. Urgent penicillin or drug allergy delabeling</li> <li>5. Early food introduction meeting very clear NIAID addendum 1 criteria (severe eczema and/or egg allergy) for early peanut introduction to prevent peanut allergy</li> </ol>
Moderate priority	<ol style="list-style-type: none"> <li>1. Reintroduction food challenges in children of any age with a documented history of a noneczema, non-EoE clinical reaction who now have likely outgrown the allergy, and that the family will reintroduce. Prioritize younger over older children. FPIES reintroduction and challenges to establish either milk/soy or rice/oat cross-reactivity in FPIES</li> <li>2. OIT uposing in patients in whom therapy was initiated, with some build up, but was held because of the pandemic</li> </ol>
Low priority	<ol style="list-style-type: none"> <li>1. Potentially cross-reactive foods with a defined reaction to a food in the class, but the challenge item itself has not been ingested (eg, any tree nut if patient is allergic to peanut or another tree nut, cross-reactivity with fish/shellfish)</li> <li>2. Baked milk/baked egg</li> <li>3. Challenge before initiation of OIT</li> <li>4. Proactive penicillin or drug allergy delabeling</li> <li>5. Routine aspirin challenge/desensitization</li> <li>6. Eczema/EoE reintroduction of foods being avoided without specific history of prior allergy</li> <li>7. Any noncommon food reintroduction of low likelihood to be an allergen but parent reluctant to introduce at home</li> <li>8. Nonmilk/soy or rice/oat FPIES cross-reactivity introduction</li> <li>9. Early food introduction in NIAID addendum 2 children (children without egg allergy, with other food allergy, or with mild or moderate eczema) for early peanut introduction to prevent peanut allergy</li> <li>10. Observed food ingestion in patients with positive food IgE test results from an outside clinician in a patient with no history of allergy</li> <li>11. Dye/additive challenges</li> </ol>

*EoE*, eosinophilic esophagitis; *FPIES*, food protein–induced enterocolitis syndrome; *NIAID*, National Institute of Allergy and Infectious Diseases; *OIT*, oral immunotherapy.

buildup toward maintenance, but can be considered in patients who have refractory rhinitis or asthma with inadequate control using other medical measures. Additional expansion of patients needing biologics or office-based infusions can occur. Initiation and uposing of oral food immunotherapy remain generally not recommended; however, as with all forms of immunotherapy, consideration may be made in certain situations in which the benefits and safety of therapy outweigh the risks of contracting COVID-19.

**Phase 3 rollout: Community infection risk declining.** In the third phase, there is significant differentiation from phases 1 and 2, with now very low rates of community transmission (accompanied by strict contact tracing), readily available and widespread testing, and/or an effective treatment and/or vaccine exists. Given the marked decrease in the risk of transmission, as well as effective identification of cases and treatment, this represents a clear threshold where the risk of face-to-face visits has lowered to the point that telehealth as the preferred encounter medium can be reduced and more in-clinic visits can be scheduled in accordance with lessening of social/physical distancing, permitting more utilization of clinical space and a lesser need for PPE. Screening protocols may have changed but will likely remain in place to some extent. There should be continuation of shared decision making regarding preference for type of visit, recognizing that patients may prefer telehealth for particular visits, provided telehealth remains an option under expanded policies as infection risk lowers. Routine spirometry can begin to be reintroduced, as can office-based

rhinolaryngoscopy. PPE should be considered for both rhinoscopy and spirometry, given the potential risk for indirect aerosolization.<sup>26</sup> Specifically, rhinoscopy poses both droplet and potential indirect aerosolization risk from this being a procedure that manipulates the pharyngeal mucous membranes and may precipitate cough/gag/sneeze from patients.<sup>28</sup> High, medium, and low priority skin testing, food/drug challenge and desensitization procedures, new environmental immunotherapy starts/reinitiation (including sublingual immunotherapy), and wait list patients unable to connect to telehealth can be scheduled. Oral immunotherapy uposing can resume and new starts can be initiated, given a lower likelihood of service disruption to uposing visit, or baseline viral transmission.

**Phase 4 rollout: Postpandemic" normal" operations.** Phase 4 essentially represents as close a return to pre-SARS-CoV-2 operations in the postpandemic landscape as possible. In this phase, herd immunity or vaccine(s) exists (with wide adoption), and/or community transmission is very low, with limited risk of exposure from a casual encounter. There would be no social distancing requirement and no need for PPE (beyond pre-SARS-CoV-2 norms). Screening protocols may remain to some extent. All normal services would be recommended to be operational.

#### **Special consideration: Primary and secondary immunodeficiency**

Although care for all allergy/immunology patients is important, patients with known or suspected immune defects

**TABLE III.** General considerations for phased reopening of practices

Patient/staff screening	<ul style="list-style-type: none"> <li>• Strict no visit/do not come to work, if sick</li> <li>• Routine temperature checks of staff and patients (consult CDC<sup>38-40</sup> guidelines on temperature age ranges)</li> <li>• Screening questions regarding symptoms, sick contacts, and travel</li> <li>• Maintain vigilance of surroundings and community regarding infection and complication rates</li> <li>• Maintain vigilance of testing capabilities of the community</li> <li>• Have an isolation plan with PPE in place for COVID+ patients/patients under investigation still requiring office-based care, or who elude screening</li> <li>• Actively monitor and modify your scheduling template</li> <li>• Maintain a list for prioritizing in-person patient visits to manage a gradual increase in capacity</li> <li>• Plan for staff coverage if a staff member has a high-risk medical condition or if he or she has to self-isolate</li> <li>• For up-to-date information on office preparedness, please consult the CDC Web site<sup>41,42</sup></li> </ul>
PPE	<ul style="list-style-type: none"> <li>• Use of at minimum cloth facial coverings or surgical masks for patients, except for very young children</li> <li>• Surgical mask/face shield in office for lower risk/standard risk contacts</li> <li>• N95-, P100-, or PAPR-level protection for aerosolizing procedures and/or known COVID+ patients/contacts/suspected contacts</li> <li>• Gowns, gloves, and hair nets where indicated</li> <li>• Clear donning and doffing procedures, and assessment of clinician and staff competency in these procedures</li> <li>• Please check with the CDC Web site<sup>43</sup> for up-to-date guidance on PPE, which may change</li> <li>• Please refer to institutional, office, or local policies that may take governance for your particular situation</li> </ul>
Social/physical distancing, examination room and waiting room issues	<ul style="list-style-type: none"> <li>• Recommended 6 ft minimum distance between staff/patients/families. Limited number of persons</li> <li>• Smart space utilization and workflow, including use of tape/markers to facilitate spacing</li> <li>• Remove magazines or other sources of paper from the waiting and examination rooms</li> <li>• Real-time sanitizing of common surfaces in waiting room and examination rooms</li> <li>• Strict hand washing and hand sanitizing</li> <li>• Maximize use of telemedicine procedures to communicate with patients to minimize time in the room</li> <li>• Be mindful to clean the office at regular intervals throughout the day</li> <li>• Follow CDC guidance<sup>43</sup> on the use of disinfecting agents for particular office furniture or medical equipment</li> </ul>
Spirometry/nitric oxide	<ul style="list-style-type: none"> <li>• Carefully consider the reopening phase and utility of the information being gained from the procedure</li> <li>• Strict hand hygiene protocols before and after the procedure for patients and staff</li> <li>• Consider unique spacing issues between patient and tester, as well as ensure tester has proper PPE including an N95 or higher level mask, gown, face shield, hair net (if needed), additional eye protection if needed, and disposable gloves, in compliance with local/institutional policy. Staff should doff PPE used in the spirometry area before entering other office/clinical space</li> <li>• Ensure filter is in place, and maximize use of any single-use materials</li> <li>• Ensure equipment and room cleaning procedures are in place, as well as time needed to clean equipment in between procedures</li> <li>• Assess ability to provide a negative pressure room if indicated</li> <li>• In phases 1 and 2, consider using telemedicine for remote testing/instructions to limit face-to-face time in a room with an aerosolizing procedure. Use home peak flow meters to assist in asthma monitoring</li> <li>• Restrict use of in-office nebulized treatment in phases 1 and 2 to the extent possible</li> <li>• Defer spirometry in patients with acute respiratory symptoms</li> <li>• Defer methacholine challenge in phases 1 and 2</li> <li>• Please refer to current ERS<sup>44</sup> and ATS<sup>26</sup> guidance</li> </ul>

ATS, American Thoracic Society; ERS, European Respiratory Society.

may have the highest risk for life-threatening complications, worsened depression/quality of life, and concerns about medication shortages and therefore require special attention.<sup>29</sup> Efforts are presently underway to systematically understand global risk, but the risk is not yet clearly understood for such patients.<sup>30</sup> In addition, although some outcomes have been published and depict vulnerability within this patient population, the true risk faced by those who are immunocompromised is not yet well understood but should still be considered as high in light of known infection susceptibility patterns in such individuals.<sup>31,32</sup> As noted in *Tables I and II*, immunodeficiency is given the highest priority within every acuity, meaning that when these patients require in-person services, they should be prioritized. However, the approach as to when such patients should be seen in the clinic setting is still nuanced, and the following points of emphasis should be considered:

Patients with a primary immune deficiency disease, primary immune regulatory disorder, or another similarly complex immunocompromised state may be uniquely susceptible to SARS-CoV-2 and potentially are at risk for severe and potentially life-threatening consequences from COVID-19. Because of the known and unknown risks in the immunocompromised population (or specific subgroups within this population, eg, those with type I IFN pathway defects who are at increased risk for RNA viruses),<sup>33-36</sup> in-person clinic/consultation visits should be carefully considered on the basis of benefit to the care of the patient (vs telehealth services, as deemed by their clinical immunologist). Furthermore, immunocompromised patients are more likely to have a preexisting need for droplet/contact/reverse precautions, and thus a more specific requirement for provider or patient PPE. Given the nature of clinic/consultation visits with clinical immunologists, many of the services provided—including counseling and data review—can

be provided remotely (via telehealth). Exceptions to remote services include the following:

- i. *Infusion services*—For those patients who require intravenous infusions of blood-derived products (such as immune globulin) or biologic agents that are not provided in-home, they will continue to receive such services in their respective infusion centers. For those patients who require subcutaneous injections of biologic agents that are not provided in-home, they will continue to receive such services in a clinical setting, with consideration for use of visiting nurses to convert this to home administration if appropriate. For patients on intravenous immune globulin, the risks and benefits of transitioning to self-administered subcutaneous immune globulin should be discussed with the patient/family.
- ii. *Vaccinations*—Select patients will require administration of vaccines for either added protection against specific pathogens to which they may be uniquely susceptible and/or as part of their diagnostic evaluation. Preferably, vaccines would be administered by the primary care provider of the patient; however, in instances in which this may not be possible, administration of select vaccines may be coordinated through an allergy/immunology office or practice.
- iii. *Spirometry/plethysmography*—Select patients will require spirometry or plethysmography, which are services they will continue to receive through either the office/practice, pending resumption of these services once deemed to be safe, or, if needed, could be arranged in a setting that minimizes aerosolization risk.
- iv. *Imaging services*—Select patients will require diagnostic imaging, which is a service they will continue to receive through local radiology practices in an outpatient or hospital setting.
- v. *Laboratory services*—Select patients will require blood, urine, stool, and/or nasal virology studies, which are services they will continue to receive through the outpatient or hospital setting.
- vi. *Consideration for convalescent plasma administration*—As we better understand the risks and benefits of convalescent plasma in both preventing and treating COVID-19, some patients may be considered for such therapy (or other newly developed preventative therapy that may emerge) either clinically or as part of national trials.<sup>37</sup>

Some of the above considerations may be applicable to patients without immune deficiency.

### Advice to the clinician

As was the case with the Shaker et al<sup>2</sup> pandemic preparation recommendations, these are general recommendations offered to help provide a paradigm for how to stage a return of services. The decisions on what services to offer and how fast to proceed are left to the discretion of the individual clinician and practice, operating in accordance with state and local ordinances with respect to the level of nonessential ambulatory care that can be provided, and to some extent where appropriate, patient preferences if a preference-sensitive context may exist within a particular risk tier. In addition to thinking through various important elements affecting safety, cleaning, and treatment, it is equally important for each clinician to continually revisit all services to determine whether they are adequately meeting their needs and adjust accordingly. Please refer to Table III for some

additional general recommendations (with links to the most current resources) on PPE, patient screening, physical distancing, and spirometry, to keep in mind when scaling up services. Clear communication with staff and patients before and after all changes should be incorporated into this new paradigm on continual change, given the movement may be forward and even backward through the phases because this is an evolving situation. This document, in combination with the COVID-19 preparation document, can provide a rationale for handling the uncertain future with respect to the SARS-CoV-2 or any other potential pandemic. Please check the AAAAI Web site COVID-19 resource page<sup>45</sup> for ongoing updates and recommendations that have been issued regarding resuming practice as well, which offers some more general recommendations.<sup>25</sup>

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