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Dermatology COVID-19 Registries

Updates and Future Directions

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KEYWORDS

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KEY POINTS

- Dermatology registries created during the COVID-19 pandemic have collected more than 8000 cases since they opened for case reporting in March and April of 2020.
- Information from these registries has informed scientific knowledge and medical practice on topics ranging from the spectrum of possible skin manifestations of COVID-19 to the safety of continued systemic treatments for dermatologic conditions in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)–positive and suspected positive patients.
- Collaboration between registries—within and outside dermatology—has been critical to this rapid knowledge production and should set a precedent for future data collection harmonization.
- A majority of cases entered in these registries are white patients from North America and Europe, indicating the work still to be done on ensuring that registries and conclusions drawn from them are representative of the affected populations.

INTRODUCTION

The world has now been dealing with the unprecedented effects of the COVID-19 pandemic for more than a year, with a global case count that has surpassed 135 million as of April 2021.[1] Accurate reporting of cases, symptoms, and treatment of the causative virus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has been critical to the development of knowledge and subsequent public health response. Registries have played an important role in collecting real-world evidence during the pandemic. Due to their rapid, harmonized, international response, the 7 dermatology groups included in this update have been managing and analyzing registry data for almost as long as the pandemic has been spreading. Launched during March and April of 2020, these registries—focused on the relationship between COVID-19 and dermatology—have now cumulatively collected more than 8000 case reports sourced from all over the world (**Table 1**). This article serves as an update[2] on their objectives, findings, and future goals in the ever-evolving COVID-19 landscape.

AMERICAN ACADEMY OF DERMATOLOGY (AAD)/INTERNATIONAL LEAGUE OF DERMATOLOGICAL SOCIETIES (ILDS) COVID-19 DERMATOLOGY REGISTRY

After initial reports from Italy and China of COVID-19 associated dermatologic manifestations, leaders from the American Academy of Dermatology (AAD) and the International League of Dermatological Societies (ILDS) founded a registry on April 9, 2020 in order to understand and better form hypotheses about this interplay between the skin and COVID-19.[3] Understanding that frontline health care workers needed reliable information, AAD and ILDS leadership worked rapidly to bring the registry from the idea generation phase to the collection of first patient data in just 8 days.[4] In an effort to capture as much data as possible, entries are crowdsourced internationally from any physician or other health care provider seeing patients with COVID-19 and possible related skin symptoms or patients who have preexisting dermatologic conditions that may be affected by COVID-19.

The AAD/ILDS COVID-19 Dermatology Registry has 1875 entries from 52 countries as of March 2021. Registry data have demonstrated the wide spectrum of dermatologic manifestations of COVID-19, ranging from pernio/chilblains in relatively mild COVID-19 to retiform purpura in ill, hospitalized patients.[5,6] The most common dermatologic morphologies in 716 patients, in the subset of COVID-19 laboratory-confirmed cases, included morbilliform (22%), pernio-like (18%), urticarial (16%), macular erythema (13%), vesicular (11%), papulosquamous (9.9%), and retiform purpura (6.4%) morphologies.[5] Other registry publications have focused on the importance of the time of testing in relation to the onset of dermatologic symptoms: polymerase chain reaction (PCR) test results earlier in the disease course were more likely to be positive, even when date of onset was defined by cutaneous manifestations rather than systemic symptoms.[7]

The registry also demonstrated that skin symptoms are experienced by long-haulers, those who experience COVID-19 symptoms for weeks or months after initial infection.[8] Pernio, or COVID toes, in particular, may last for many months,

Table 1
The status of 7 international COVID-19 dermatology registries, as of March 2021

Registry	Provider-Facing?	Patient-Facing?	Date First Case Was Entered	Cases in Registry	Open for New Entries?	Web Site
AAD/ILDS	✓		April 9, 2020	1875	✓	www.aad.org/covidregistry
SECURE-Alopecia	✓		April 8, 2020	229	✓	www.securealopecia.covidderm.org
SECURE-AD	✓	✓	April 1, 2020	261(provider) 639 (patient)	✓	www.covidderm.org
PsoProtect	✓		March 27, 2020	996	✓	www.psoprotect.org
PsoProtectMe		✓	May 4, 2020	3660	✓	https://psoprotectme.org/
SECURE-Psoriasis	✓		April 1, 2020	33	✓	www.covidpso.org
HS COVID	✓	✓	April 30, 2020	46 (provider) 184 (patient)	✓	https://hscovid.ucsf.edu/
PeDRA	✓		April 12, 2020	467	✓	www.pedsderm.net

raising the question about persistent inflammation in these patients.[9] In addition to these findings, data from the registry have been used to inform public health policy. In multiple states, COVID toes are now part of their testing criteria and have served to highlight the importance of dermatologic data for characterizing the different phenotypes of COVID-19.

A majority (75%) of registry entries were of new-onset dermatologic manifestations in the setting of COVID-19. The registry still collected, however, approximately 5% of total cases on outcomes of patients with dermatologic conditions on immunosuppressive medications and was able to collaborate with PsoProtect and Surveillance Epidemiology of Coronavirus Under ResearchExclusion–Atopic Dermatitis (SECURE-AD) to share these cases. Additionally, there were multiple cases of post–COVID-19 telogen effluvium (TE), which the AAD/ILDS registry has worked with SECURE-Alopecia to document.

Given the importance of data sharing and allowing other investigators to explore important COVID-19 dermatology questions, the AAD/ILDS registry has established a data request process whereby investigators can apply for access to registry data.[10] Additionally, the AAD/ILDS registry has added a new module on COVID-19 cutaneous vaccine reactions to characterize reactions to COVID-19 vaccines[11]; 526 vaccine reactions already have been reported. The aim of this characterization is to understand the types of reactions that can present and to provide data that may prove reassuring to patients and health care providers regarding the ability to receive a second dose (in vaccines that require 2 doses) for patients with cutaneous reactions to the first dose.

SECURE-ALOPECIA

Emerging evidence regarding the potential of multiple therapies utilized in patients with alopecia (including hydroxychloroquine, antiandrogens, and JAK inhibitors, such as baricitinib) to alter COVID-19 outcomes prompted a core team from Ireland, the United Kingdom, and Australia to launch Surveillance Epidemiology of Coronavirus Under Research Exclusion-Alopecia (SECURE-Alopecia). After engaging an internationally recognized network of hair experts to define a data set harmonized with SECURE-AD (described later), the registry was launched on April 8, 2020 to record data of COVID-19–positive patients with scarring and nonscarring alopecia, both on treatment and off treatment.[12–14] The primary objective was to uncover the underlying determinants of outcomes of COVID-19–positive patients with any form of alopecia and to assess the impact of COVID-19 on alopecia—such as the development of TE.

As of March 5, 2021, there were 229 cases from 14 countries in the SECURE-Alopecia registry. Although initial data have been presented at a meeting of the American Hair Research Society and numerous educational meetings, a formal analysis has not yet been published because the diversity of the data has necessitated greater recruitment. The international steering committee

has led to 2 publications regarding alopecia therapeutics during the COVID-19 era and the development of patient registries during a pandemic.[15,16]

The pressure on health services to prioritize acute and emergency care during the pandemic understandably has reduced the capacity for clinicians to follow patients with alopecia. As the pandemic has progressed and services have become more accessible, the number of cases entered in SECURE-Alopecia has increased. The delayed emergence of TE also has contributed to greater reporting of cases with time. TE is a nonscarring alopecia that results in diffuse alopecia.[17] Immediate anagen release—when large numbers of anagen follicles are triggered to prematurely enter catagen and then telogen[18]—classically is associated with high fever and certain medications and the timing mirrors the mean time from SARS-CoV-2 diagnosis in a study of 195 patients who developed acute TE.[19] Although proinflammatory cytokines or medication were proposed as potential triggers, 10% of patients experienced subclinical disease.[19] A more immediate, presumed dystrophic anagen effluvium has been reported in a single case report, although further evidence is required to validate this.[20,21] It is expected that SECURE-Alopecia will contribute to a better understanding of this component of long COVID.

SECURE-Alopecia is based on a data set developed by SECURE–Inflammatory Bowel Disease (IBD), an international database used to track cases of COVID-19 in patients with IBD. SECURE-Alopecia is matched with SECURE-AD and also is aligned closely with PsoProtect, the AAD/ILDS registry, and other inflammatory disease registries in order to enable comparative analyses. SECURE-Alopecia is engaged in ongoing discussions with these and other registries to ensure collaboration as data collection progresses. Collaboration with other registries also is of considerable interest to the steering committee, particularly with respect to cases where immunomodulatory therapies have been utilized.

In view of the delayed reporting of cases of alopecia and the emerging cases of TE and anagen effluvium that are being described, SECURE-Alopecia intends to continue to recruit cases for the foreseeable future and also aim to extend its data set to analyze the impact of vaccination on alopecia.

SECURE-AD

The SECURE-AD registry went live on April 1, 2020, as an international collaboration of dermatologists, epidemiologists, and patient experts. The primary objective is to uncover the underlying determinants of outcomes of COVID-19 in patients with AD who are treated with systemic immunomodulating medications and to examine whether outcomes are influenced by age, sex, ethnicity, or comorbidities. A secondary aim is to determine the impact of COVID-19 on the disease course and severity of AD.

SECURE-AD has both patient-facing and physician-facing registries. To date, more than 900 patients from 22 countries have been enrolled in the 2 data entry platforms (261 in the physician registry and 639 in the patient registry). In the physician registry, a majority of patients (49.8%) had mild disease at baseline (moderate, 19.0%; severe, 6.8%; remission, 20.5%; and unknown, 3.9%). Only 18.0% of patients experienced an AD flare during their COVID-19 episode. Among the 163 patients on systemic immunomodulatory medication, most were treated with dupilumab (74%), whereas 9% of patients received a conventional immunosuppressive drug during their COVID-19 episode (methotrexate, cyclosporin, mycophenolate mofetil, azathioprine, or corticosteroids). The remainder were only on topical therapy for their AD. 33 patients attended a hospital emergency department (ED) and 7 patients were hospitalized, 4 of whom required ventilation. In examining comorbidities, 2 of the ventilated patients had a body mass index (BMI) over 30 kg/m2. None of the hospitalized patients died.

Data from the registry showed that COVID-19 symptom duration and resolution were not influenced by type of systemic medication (dupilumab vs conventional immunosuppressive treatments), although there was a trend toward a higher number of ED visits in the latter group. Overall, the risk of COVID-19 and its complications appears low in AD patients treated with systemic medications.

SECURE-AD has been collaborating with the SECURE-IBD, PsoProtect, SECURE-Alopecia, and AAD/ILDS registries and comparative analyses between these different data sets are planned for the future. SECURE-AD intends to continue to recruit cases for the foreseeable future and also aim to extend its data set to analyze the impact of vaccination on AD.

THE PsoProtect

The PsoProtect registry launched globally on March 27, 2020 as a platform for clinicians to report their patients with psoriasis and confirmed or suspected COVID-19. The PsoProtect registry sought to characterize the course of COVID-19 in people with psoriasis and identify factors associated with adverse outcomes. It was established

as a collaborative research effort involving an international team of clinicians, epidemiologists, health data researchers Oxford, and patient representatives, and the registry's data fields are aligned with other immune-mediated inflammatory disease (IMID) COVID-19 registries (including SECURE-AD, SECURE-IBD, and Global Rheumatology Alliance [GRA]). PsoProtect*Me*, a separate patient-facing registry with aligned questions available in 10 languages, launched globally on May 4, 2020. PsoProtect*Me* aims to characterize the experiences and behaviors of those with psoriasis (whether or not they have had COVID-19) during the pandemic.

Analysis of the first 374 patients reported by clinicians to PsoProtect with confirmed or suspected COVID-19 and psoriasis was published in the *Journal of Allergy and Clinical Immunology*[22]; 71% of patients reported to PsoProtect were receiving a biologic, 18% were receiving a nonbiologic, and 10% were not receiving any systemic treatment of their psoriasis; 93% of reported patients fully recovered from COVID-19, 21% were hospitalized, and 9 patients (2%) died. There were no significant differences found between classes of biologics, but biologic use was associated with a lower risk of COVID-19–related hospitalization compared with nonbiologic systemic therapies. The PsoProtect investigators highlight the need for further investigation into this on account of potential selection biases (eg, most patients reported to PsoProtect were receiving biologics) and unmeasured confounding (eg, potential differences in risk mitigating behaviors between treatment groups).

An analysis of self-reported data from 2869 people with psoriasis reporting to PsoProtect*Me* subsequently was published in the *British Journal of Dermatology*.[23] Data from PsoProtect*Me* were pooled with self-reported data from 851 people with rheumatic diseases reporting to the aligned registry CORE-UK. Shielding, or stringent risk-mitigating behavior, during the pandemic was associated with use of targeted therapies compared with standard systemic agents or no treatment. This difference in behavior between treatment groups may contribute to the reported lower risk of adverse COVID-19 outcomes associated with use of targeted biologic treatment. Shielding also was associated with established risk factors for severe COVID-19 (male sex, obesity, and comorbidity burden) and a positive anxiety or depression screen.

Data from the PsoProtect registry has thus uncovered key demographic and clinical factors associated with severe COVID-19 outcomes in psoriasis, which have helped to inform clinical care during the pandemic. Reassuringly, these data suggested that most people with psoriasis receiving drugs that affect the immune system fully recovered from COVID-19. PsoProtect has informed clinical guidance statements from the International Psoriasis Council[24] and the National Psoriasis Foundation[25] and has engaged with patient organizations, such as the Psoriasis Association[26] and the International Federation of Psoriasis Associations.[27] Findings from PsoProtect*Me* on risk-mitigating behavior across treatment groups also have informed evidence-based communication with patients and have the potential to inform updated public health guidelines on shielding as the pandemic continues.

PsoProtect continues to collaborate with AAD/ILDS and SECURE-Psoriasis in order to optimize international case capture. There also is an ongoing collaboration between PsoProtect, SECURE-IBD, and GRA, which seeks to identify factors associated with severe COVID-19 outcomes across IMIDs and across systemic treatments.

SECURE-PSORIASIS

Surveillance Epidemiology of Coronavirus Under Research Exclusion-Psoriasis (SECURE-Psoriasis) is the other registry focused specifically on psoriasis in this group of contributors. It was launched on April 1, 2020, by a team from Wake Forest School of Medicine in North Carolina as an international, deidentified, provider-facing registry for psoriasis patients with concomitant confirmed COVID-19 infection. This registry was produced in partnership with SECURE-IBD[28] and was designed to better define the impact of COVID-19 on patients with psoriasis.

The SECURE-Psoriasis registry has recorded more than 30 reported cases in recent months, both from the United States and internationally. The registry has shared its data with several other COVID-19 registries for patients with dermatologic conditions, including PsoProtect, resulting in multiple internationally collaborative articles, such as the review of 374 psoriasis patients with confirmed COVID-19 (described previously).[22] Another shared publication discusses the importance of collaborative development of interoperable patient registries.[16]

The data gathered through SECURE-Psoriasis and other registries for psoriasis patients diagnosed with COVID-19 have helped inform the question of how patients on biologic therapy for chronic inflammatory conditions, such as psoriasis, fare during a global pandemic. SECURE-Psoriasis data also have helped to answer the

question of which patient characteristics are associated with better and worse COVID-19 outcomes. Additionally, the registry has gathered data on COVID-19's possible effect on psoriasis symptoms.

As recently as December 2020, SECURE-Psoriasis shared a new collection of case data with PsoProtect in order to maximize collaboration between US and international registry efforts. Continued collaboration with other international registries is planned in the future in order to examine the question of biologics' effect on COVID-19 outcomes more comprehensively and in a larger patient population.

The main objective of the SECURE-Psoriasis registry continues to be the maximization of data sharing and collaboration with other registries for psoriasis patients diagnosed with COVID-19 in order to better understand the effects of a pandemic environment on patients with chronic inflammatory conditions.

GLOBAL HIDRADENITIS SUPPURATIVA COVID-19 REGISTRY

The Global Hidradenitis Suppurativa COVID-19 (HS COVID) Registry was established in order to identify predictors of COVID-19 outcomes and improve the care of patients with HS.[29] This international pediatric and adult registry was launched by a team of investigators and patient partners from the United States, Canada, United Kingdom, Australia, Italy, and Denmark in collaboration with the United States, Canadian, and Asia-Pacific hidradenitis suppurativa foundations; Hope for HS; and Hidradenitis Suppurativa Warriors. At registry inception, data collection instruments were harmonized with SECURE-Alopecia, PsoProtect, SECURE-AD, and AAD/ILDS to enable comparisons of outcomes with other patient populations, including those with inflammatory diseases. The registry went live on April 5, 2020.

Data from HS COVID have shown that biologics are not associated with greater COVID-19 severity or greater need for COVID-19 treatment. In patient-reported cases, after adjusting for age, sex, and comorbidities, hidradenitis suppurativa (HS) patients taking biologics did not have greater odds of in-hospital treatment compared with those not taking biologics (odds ratio [OR] 0.5; 95% CI [0.1, 2.4]; $P = .4$). HS patients taking biologics did not have significantly greater odds of requiring oxygen support compared with those not taking biologics (OR 0.52; 95% CI [0.2, 1.8]; $P = .5$). No differences in hospitalization, oxygen requirement, or complications were observed for those who continued versus discontinued biologics at the time of COVID-19 diagnosis ($P > .5$ for all).

In health care provider–reported cases, COVID-19 severity ranged from asymptomatic to moderate (11.1% asymptomatic, 77.8% mild, and 11.1% moderate). No difference in virus severity was observed between patients taking biologics and not taking biologics ($P = .3$). Shortness of breath and acute respiratory distress syndrome were reported infrequently (4 of 27 cases; 13.3%). There was no difference in COVID-19 severity between those who continued and those who discontinued biologics ($P = .3$). No instances of death, strokes, myocardial infarctions, heart failure, or sepsis were reported by patients or providers.

These initial findings have guided use of biologic therapies in patients with HS, and informed knowledge of the safety of tumor necrosis factor, interleukin (IL)-1, IL-17, and IL-12/23 inhibitors in the overall setting of COVID-19. By confirming the continued use of disease-altering therapies throughout the pandemic, these findings potentially have aided in reducing urgent care and emergency room health care utilization by HS patients with disease flares. Overall, initial findings from patient-reported and provider-reported cases indicate that COVID-19 severity in HS patients was mild to moderate, with no difference in COVID-19 severity between those taking and not taking biologics nor between those who continued versus discontinued biologic treatment.

The team plans to examine HS outcomes in comparison with other inflammatory skin disease outcomes. As an extension of this work, HS COVID is considering collecting data on the vaccination preferences and experiences of people living with HS. These data will inform HS management for this and future pandemics and public health crises.

PeDRA REGISTRY

With a goal of creating a pediatric-specific international registry for acral skin changes, the Pediatric Dermatology COVID-19 Response Task Force—a collaborative effort by members of the Society for Pediatric Dermatology (SPD) and Pediatric Dermatology Research Alliance (PeDRA), further supported by the British Society for Paediatric Dermatology—established the PeDRA registry on April 12, 2020.

To date, 467 patients have been entered into the pediatric (2 months to 18 years) acral change registry. A majority (60%) of patients entered were white men with an average age of 13 years (±3.6 y). A minority of patients had been tested

for SARS-Cov-2 and only 1.6% of those tested had a positive PCR or antibody test. Generally, COVID-19–positive children had minimal other symptoms, no hospitalizations, and no mortality. Ten children who presented in the spring had recurrence of acral changes in the late fall and early winter without other symptoms. This work was presented at the PeDRA October 2020 meeting.[30]

The PeDRA registry has been instrumental in understanding the short-term and long-term sequelae of acral pernio. Reassuringly, pediatric patients presenting with acral pernio-like changes have an excellent prognosis. Rare patients with systemic signs or symptoms did not have significant complications or lasting systemic sequelae, but a subset have had persistent or recurrent acral changes weeks to months after initial presentation. Acral pernio in otherwise healthy pediatric patients does not need to be comprehensively evaluated with skin biopsy and laboratory work because it is not suggestive of the severe ischemic coagulopathies observed in critically ill COVID-positive adults. In certain clinical contexts, COVID-19 testing by PCR or serology may be appropriate.

In the future, the registry aims to track all entries for updated clinical data about course and prognosis and evaluate cases comprehensively in order to assist in the ongoing work of determining the precise nature of the relationship between COVID-19 and acral pernio in otherwise healthy children.

DISCUSSION: WHERE DO WE GO FROM HERE?

There certainly are limitations to the conclusions that can be drawn from registry data. For example, an important limitation of these registries is their lack of information on the total population at risk for any event of interest, be it dermatologic manifestations of COVID-19 or outcomes, such as death or hospitalization. Thus, the data cannot be used to calculate the incidence or prevalence of any complications of COVID-19 in the population at large. Additionally, the fact that most registries are available only in English—despite being open for global submissions—introduces a reporting bias, which further curtails generalizability, exemplified by the fact that many of the cases entered in these registries are white patients from North America and Europe. For example, although the AAD/ILDS registry has entries from 52 countries on all continents other than Antarctica, 87.8% of those cases are from the United States, and 79.9% of the patients are white (9.4% Asian, 8.1% Hispanic/Latino, and 2.7% black). Other registries follow a similar racial breakdown, with 78.1% of SECURE-AD, 77.8% of SECURE-Psoriasis, 72% of PeDRA, 68% of HS COVID, and 64% of SECURE-Alopecia cases being white patients. Geographically, 87% and 56%, respectively, of SECURE-Psoriasis and HS COVID cases are from North America, and 70% of PEDRA cases are from the United States. This homogeneity has implications for the ability of registries to contribute generalizable scientific knowledge, especially for a pandemic that has touched all continents and disproportionately afflicted communities of color. In the end, conclusions drawn from these registries are only as good as the data entered. There still is work to be done in ensuring equitable representation of the global dermatologic patient community.

That said, registry data have been instrumental in enhancing scientific knowledge during the pandemic. By providing a platform where physicians and, in some cases, patients can enter their observations, a registry can crowdsource disparate findings from around the world, facilitating the recognition of recurrent patterns. Registry data led to the understanding of the spectrum of cutaneous manifestations of the virus: pernio-like lesions are associated with mild COVID-19 whereas retiform purpura is seen only in severe COVID-19 patients requiring intensive care.[5] Other hypotheses generated from this real-world evidence have influenced the advancement of scientific knowledge about the virus, its various manifestations, and patient care, as in the cases of recognizing COVID toes as a symptom of the

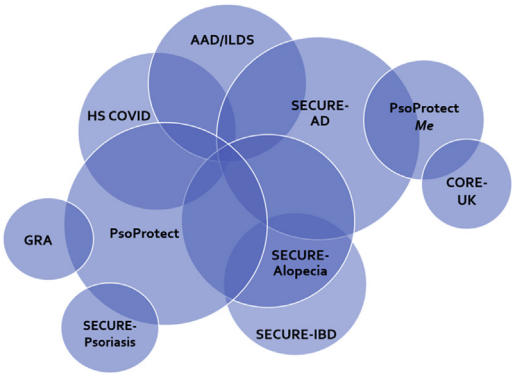

Fig. 1. Every group collaborated with at least 1 other in developing their registry or analyzing data. Overlap between circles represents collaboration between registries; circle size corresponds to number of collaborations, with PsoProtect and SECURE-AD each having 6 and SECURE-Psoriasis having 1.

Table 2
The registries have a shared objective of understanding the interplay between COVID-19 and skin conditions

Registry	Objective
AAD/ILDS	To capture observations from health care providers worldwide in order to understand dermatologic manifestations of COVID-19 and form hypotheses about the virus
SECURE-Alopecia	To capture observations from health care providers worldwide in order to understand the impact of alopecias and their therapies on COVID-19 and whether the virus induces alopecia
SECURE-AD	To uncover the underlying determinants of the outcomes of COVID-19 in patients with AD who are treated with systemic immunomodulating medication, and—through the patient survey—to better understand how COVID-19 affects AD patients and improve their care
PsoProtect	To characterize the course of COVID-19 in people with psoriasis and the factors associated with adverse outcomes through a physician-reported registry
PsoProtectMe	To characterize the behaviors and experiences of people with psoriasis during the COVID-19 pandemic, regardless of COVID-19 infection, through a patient-reported registry
SECURE-Psoriasis	To collect cases of psoriasis patients diagnosed with COVID-19 and examine the disease course and clinical outcomes in psoriasis patients, and to evaluate patient factors that may lead to better or worse COVID-19 outcomes
HS COVID	To identify predictors of COVID-19 outcomes and improve the care of patients with HS
PeDRA	To collect cases of acral pernio-like changes identified in pediatric patients through a registry for health care providers in order to capture and document this newly observed phenomenon and determine its relationship to COVID-19 by symptoms, exposure, and formal testing

virus or providing reassuring data on use of biologics and immunosuppressive medications during the pandemic.[22] Furthermore, the synthesized data generated by these registries have been made widely accessible to professionals and the public through peer-reviewed publications and informative online platforms,[31,32] thus providing important guidance concerning COVID-19 disease symptoms in the general population and in patients with chronic skin diseases.

The immense amount of collaboration (**Fig. 1**) between registries—both within dermatology and with external registries documenting nondermatological conditions—was instrumental to this production of knowledge and should set a precedent for the harmonization of data collection in the international dermatology community moving forward. When the need for evidence-based answers is high and the availability of time and resources is low, collaboration can enhance the ability of researchers and medical professionals to provide quality information and care. Due to democratized access and less stringent inclusion criteria (compared with clinical trials and studies), registries can better reflect real-world evidence, especially when it comes to rare diseases or long-term complications and outcomes.[2,16]

All the registries included in this article intend to remain open for further case reporting. As the global vaccine rollout continues, at least 5 registries—AAD/ILDS, SECURE-Alopecia, SECURE-AD, PsoProtect, and HS COVID—are collating information on patients' COVID-19 vaccine complications and experiences into their work. The biggest and most critical shared goal is the continued collaboration between registries as they work toward their shared objectives (**Table 2**) of understanding COVID-19 in the context of dermatologic diseases and better serving patients worldwide.

DISCLOSURE

Dr L.E. French is president of the ILDS. Dr E.E. Freeman is principal investigator of the AAD/ILDS COVID-19 Dermatology Registry. The ILDS provides financial support for the AAD/ILDS registry.

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Spuls has received departmental independent research grants from a few pharmaceutical companies for the TREAT NL registry, is involved in performing clinical trials with many pharmaceutical industries that manufacture drugs used for the treatment of conditions like psoriasis and atopic dermatitis, for which financial compensation is paid to the department/hospital, and is chief investigator of a systemic and phototherapy atopic eczema registry (TREAT NL) for adults and children and one of the main investigators of the SECURE-AD registry. Drs D. Wall and R. Sinclair colead and are members of the steering committee, along with Dr N. Meah, of the SECURE-Alopecia registry. Drs R. Sinclair, D. Wall, and N. Meah are leading the development of the Global Registry of Alopecia Areata Disease Severity and Treatment Safety. Dr D. Wall is an employee of the charity NISR. Dr R. Sinclair also reports serving as a consultant or paid speaker for or participating in clinical trials sponsored by LEO Pharma, Amgen, Merck & Co, Celgene Corporation, Coherus BioSciences, Regeneron Pharmaceuticals, MedImmune, GlaxoSmithKline, Cutanea, Samson Clinical, Boehringer Ingelheim, Merck Sharpe & Dohme, Oncobiologics, F. Hoffman–La Roche, and Bayer AG and serves as the current president of the Australasian Hair and Wool Research Society. G.C. Chamberlin and D.E. McMahon and Drs E.A. Balogh and A.V. Marzano have no conflicts of interest to declare.

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