

The Voice of the Patient

A series of reports from the U.S. Food and Drug Administration's (FDA's)
Patient-Focused Drug Development Initiative

Psoriasis

Public Meeting: March 17, 2016

Report Date: November 2016

Center for Drug Evaluation and Research (CDER)
U.S. Food and Drug Administration (FDA)

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Introduction

On March 17th, 2016, FDA held a public meeting to hear perspectives from psoriasis patients, caregivers and other patient representatives on the most significant dermal or skin-related effects of the disease and currently available therapies. FDA conducted the meeting as part of the Agency's Patient-Focused Drug Development initiative, an FDA commitment under the fifth authorization of the Prescription Drug User Fee Act (PDUFA V) to more systematically gather patients' perspectives on their condition and available therapies to treat their condition. As part of this commitment, FDA is holding 24 public meetings between Fiscal Years 2013 - 2017, each focused on a specific disease area. The psoriasis public meeting was the Agency's 18th Patient-Focused Drug Development meeting.

More information on this initiative can be found at

<http://www.fda.gov/ForIndustry/UserFees/PrescriptionDrugUserFee/ucm326192.htm>.

Overview of Psoriasis

Psoriasis is a chronic inflammatory disease of multiple systems, with predominantly skin and joint manifestations. It affects approximately 2-3% of the United States population, and its clinical presentation typically includes areas of red, thickened, scaling skin that is often itchy or sore. Other symptoms may include dry or cracked skin that may bleed, and thickened, pitted or ridged nails. In addition to dermal symptoms, approximately one-third of the psoriasis population also has psoriatic arthritis that typically manifests as joint pain, stiffness and swelling. The most common types of psoriasis include:

- Plaque psoriasis, also known as psoriasis vulgaris: the most common type, characterized by inflamed, red skin covered with silvery white scales. The patches may itch and burn and can appear anywhere on the body, but often on the elbows, knees, scalp, and lower back.
- Guttate psoriasis: characterized by small, red spots mainly on the torso and limbs.
- Inverse psoriasis: characterized by bright red, shiny lesions that appear in skin folds, such as the armpits, groin area, and under the breasts.
- Pustular psoriasis: a less common type that is characterized by pus-filled bumps (pustules) surrounded by red skin.
- Erythrodermic psoriasis: the least common, but most serious type that affects most of the body and causes widespread, fiery skin that appears burned.

There is no cure for psoriasis; however, there are several treatment options that aim to reduce and manage symptoms, and improve the quality of life. These medical products include topical treatments (e.g., corticosteroids, retinoids, and Vitamin D analogs), phototherapy (e.g., ultraviolet B (UVB), and photochemotherapy), and oral or injected medications (e.g, methotrexate, acitretin, cyclosporine, apremilast, and biologics, such as etanercept, infliximab, adalimumab, ustekinumab, and secukinumab). Lifestyle modifications, such as diet and alternative therapies are also common components of psoriasis treatment regimens.

Meeting overview

This meeting provided FDA the opportunity to hear directly from patients, caregivers, and other patient representatives about their experiences with psoriasis and its treatments. The discussion focused on two key topics: (1) disease symptoms and daily impacts of psoriasis that matter most to patients and (2) patients' perspectives on current approaches to treating psoriasis. FDA was particularly interested in hearing from patients about their dermal symptoms of psoriasis. The questions for discussion (Appendix 1) were published in a [Federal Register](#) notice that announced the meeting.

For each topic, a panel of patients (Appendix 2) shared comments to begin the dialogue. Panel comments were followed by large-group facilitated discussions inviting comments from other patients and patient representatives in the audience. An FDA facilitator led the discussion, and a panel of FDA staff (Appendix 2) asked follow-up questions. Participants who joined the meeting via the live webcast (referred to in this report as web participants) were also able to contribute comments. In addition, in-person and web participants were periodically invited to respond to polling questions (Appendix 3), which provided a sense of the demographic makeup of participants and how many participants shared a particular perspective on a given topic.

Approximately 70 psoriasis patients or patient representatives attended the meeting in-person. Approximately 160 people attended the meeting through the live webcast, of which approximately 20 people who identified as psoriasis patients or patient representatives contributed input. According to their responses to the polling questions, in-person and web participants represented a spectrum of the psoriasis patient population. There was a slightly higher proportion of female versus male participants (60% female, 40% male). There was a wide range in the age of the participants, with the largest age group of participants being between the ages of 50 to 59. The pediatric psoriasis experience was discussed by several participants younger than age 18, some caregivers for pediatric psoriasis patients, and some adult participants who had been diagnosed as a child. Participants showed a range in the length of time since diagnosis from less than five years ago to more than 20 years ago; however, around 60% of participants reported having been diagnosed with psoriasis more than 20 years ago.

While the participants' disease represented a range of types of psoriasis including plaque, guttate, inverse, pustular, and erythrodermic psoriasis, nearly 90 percent indicated having plaque psoriasis. Participants indicated a wide range of psoriasis locations including scalp, face, hands or feet, nails, trunk, arms or legs, skin folds and genital areas. While the meeting primarily focused on the dermal symptoms of psoriasis, nearly half of participants indicated also having been diagnosed with psoriatic arthritis. Although participants in this meeting may not fully represent the diverse population living with psoriasis, the input reflected a range of experiences with psoriatic symptoms and treatments.

To supplement the input gathered at the meeting, psoriasis patients and others were encouraged to submit comments on the topic to a public docket,¹ which was open until May 17, 2016. Eighty-four comments were submitted to the public docket, the majority by individual patients and caregivers.

More information, including the archived webcast and meeting transcript, is available on the meeting website: <http://www.fda.gov/ForIndustry/UserFees/PrescriptionDrugUserFee/ucm470608.htm>.

¹ A *docket* is a repository through which the public can submit electronic and written comments on specific topics to U.S. federal agencies such as FDA. More information can be found at www.regulations.gov.

Report overview and key themes

This report summarizes the input shared by patients and patient representatives during the meeting or through the webcast. It also includes a summary of comments submitted to the public docket. To the extent possible, the terms used in this report to describe specific psoriasis symptoms, impacts, and treatment experiences reflect the words used by in-person, web participants, or docket commenters. The report is not meant to be representative in any way of the views and experiences of any specific group of individuals or entities. There may be symptoms, impacts, treatments, or other aspects of the psoriasis that are not included in this report.

The input from the meeting and docket comments underscore the diversity in patients' experiences with psoriasis. It also highlights the immense emotional and social toll the disease can exert on patients' lives. Several key themes emerged from this meeting:

- Participants reiterated poignantly how psoriasis is much more than a skin rash. They described a debilitating chronic disease that places a significant burden on daily life and has a severe impact on how patients feel and function.
- Participants described the physical, social and emotional impact that living with psoriasis has had on their lives, including: limitations on activities, embarrassment, stigma, and social discrimination. Participants also commented on the destructive impact of psoriasis on multiple generations of their families.
- Participants shared their experiences with phototherapy and prescription and non-prescription medicines via various routes of administration, including topical, oral, intravenous, and intramuscular. Participants highlighted the varying degrees of success in managing their symptoms with these therapies. Participants also stressed the need to enhance the treatment armamentarium, given current challenges with variability in effectiveness, tolerability, access to available treatments, and uncertainty regarding long-term effects of available treatments. The discussion also highlighted the unmet medical need for more and better treatments for the pediatric population living with psoriasis.

The patient input generated through this Patient-Focused Drug Development meeting and the public docket comments strengthens FDA's understanding of the burden of psoriasis on patients and the treatments currently used to treat psoriasis and its symptoms. FDA staff will carefully consider this input during the drug development process, including when advising sponsors on their drug development programs and when assessing products under review for marketing approval. For example, (Appendix 4) shows how this input may directly support our benefit-risk assessments for medical products under review. This input may also be of value to the drug development process more broadly. For example, it may be useful to drug developers as they explore treatments for pediatric psoriasis patients or as they define clinical endpoints related to itching, burning, pain, and other symptoms. It could also point to the potential need for development and qualification of new outcome measures in clinical trials, such as psoriasis at specific locations.

Topic 1: Disease Symptoms and Daily Impacts That Matter Most to Patients

The first discussion topic focused on patients' experiences with their dermal psoriasis symptoms and the how these symptoms affect their daily lives. FDA was particularly interested in hearing participants describe specific symptoms in their own words. FDA was also interested in learning about the activities that patients can no longer do at all, or as fully as they would like because of their condition.

Five panelists (Appendix 2) provided comments to start the dialogue. They included:

- A 67 year-old woman with plaque psoriasis (entire body), inverse psoriasis and psoriatic arthritis. She had been on various treatment regimens, including drug and non-drug therapies, and considered her psoriasis to be controlled with her current biologic treatment regimen.
- A 27 year-old woman with guttate psoriasis (legs, arms, and trunk) and plaque psoriasis on her scalp, face, arms, legs and knees. She considered her psoriasis moderately well-controlled with her current treatment regimen of topicals and over-the-counter products.
- A 74 year-old man with plaque psoriasis and psoriatic arthritis who considered his dermal psoriatic symptoms controlled with his current biologic treatment regimen paired with diet modifications and exercise.
- A woman in her late fifties with plaque psoriasis over her entire body, as well as psoriatic arthritis. She had been on biologics for treatment for her psoriasis for over a decade, and considered her symptoms controlled.
- A 51 year-old woman with plaque psoriasis over her entire body who experienced a period of remission between ages 10 and 11 before her psoriasis flared again during puberty. Currently on a biologic treatment regimen, she considered her psoriatic symptoms controlled.

The panelists' statements provided a vivid description of the burden of daily and prolonged living with psoriasis. They described the day-to-day limitations of living with psoriasis, and in particular, the challenges they or their loved ones face in living with the unpredictability of symptom flares. Their stories provided rich insight into the emotional, social, and psychological impacts of the condition. In the large-group facilitated discussion that followed the panel discussion, nearly all of the patients and caregivers in the audience indicated by a show of hands that their own experiences (or those of their loved ones) were reflected in the panelists' comments.

Perspectives on most significant symptoms

In a polling question (Appendix 3, Q9), participants were asked to identify up to three dermal psoriasis symptoms that have had the most significant impact on daily life. Flaking or scaling and itching received the highest number of responses, followed by dry, cracked skin that may bleed, pain or soreness, and burning or stinging. Web participants reported similar symptoms as their most significant. The large-group facilitated discussion provided insight into how these and other psoriatic symptoms manifest and change over time. The range of symptoms discussed with in-person and web participants are described further below.

Flaking or scaling

Over two-thirds of participants identified flaking or scaling as one of their most significant symptoms of psoriasis. Some participants stated that their flaking or scaling is often localized to certain psoriasis-prone areas, such as elbows and knees, while other participants described having “saucer-like patches” that can be found all over their body. One participant commented that due to her skin tone her psoriasis did not look the same as those with lighter skin, and that hers was “very dark and very thick.” Participants echoed that the flaking and scaling is constant and that they often found themselves “absentmindedly rubbing” certain areas of skin. One participant with scalp psoriasis commented that her scalp “peels without me even realizing it.” To highlight the significance of flaking, another participant estimated that he lost “230 pounds of scale ... over the last 41 years.”

Participants’ descriptions of scaling and flaking touched upon both the physical and emotional effects of this symptom. For example, one participant commented, “I would wear two or three pantyhose to cover up my psoriasis or I would wear a long-sleeved shirt, undershirt, tie a rubber band around the wrist because so many flakes would fall out.” Another participant said, “I would try not to drink anything during the day because if I went to the restroom flakes would be everywhere and I’d have to be on my hands and knees to clean the flakes up.”

Itching

Over two-thirds of participants indicated that itching was one of their most significant symptoms of psoriasis. One participant described the symptom as a “constant mind-blowing itch,” and another called it an “intense subcutaneous itch” that is “down deep” in the skin, a description that resonated in the room. Participants emphasized that even when they are able to clear or control other dermal symptoms of psoriasis, such as plaque, the itch prevails. They further shared frustrations, including “you can’t help but tear skin,” “pull out clumps of hair” and “scratch holes,” as a result of the itching.

Dry, cracked skin that may bleed

Nearly forty percent of participants identified dry, cracked skin that may bleed as a significant symptom of their psoriatic condition. Participants described the interrelatedness of this symptoms and other symptoms, as one participant described: “the thicker the scales get on my skin, the more they itch, and the more they itch, the more I am likely to scratch them, and the more I scratch them, the more they start to crack, and then more come back and it keeps going and going...” Another participant captured this process as “cracking, fissuring and bleeding.” Participants commented their dry, cracked skin is especially prevalent in areas where skin is thinner, such as the folds of the body. Several participants described the pain associated with this symptom. One participant shared, “it hurts to sit, it hurts to move,” while another participant added, “every time I would move I would bleed...just sitting in a chair and getting up.”

Stinging, burning and pain

Both pain or soreness and burning or stinging were identified as most significant by greater than 25 percent of in-person participants. The significance of these symptoms was reiterated when the FDA facilitator asked participants to indicate by a show of hands, if they were currently experiencing pain while sitting in the room, and nearly all raised their hands. FDA was interested in understanding psoriasis patients’ perspectives on any distinctions between stinging, burning, and pain as psoriatic

symptoms. Several participants indicated that the stinging and burning is more episodic while their pain is more constant. One participant commented the burning “felt like it was almost a layer under my skin and it was usually everywhere,” while the stinging “could be localized.” Many participants further clarified that the pain is different from other kinds of physical pain; for instance, “not on the surface of your skin” but rather “under your skin.” A web participant likened the burning and pain to that of a cold sore that never goes away. Participants also stressed the significance of these symptoms. For example, one participant stated that “the burning and stinging were definitely the worst part of my experience [as a child]... I felt like I was trapped in a body that just didn’t belong to me...it literally felt like I had been lit on fire, but it never stopped... I’d wake up in the middle of the night just screaming and as a toddler [I] tried to rip my skin off every single day.”

Other symptoms

In addition to the symptoms described above, participants also shared a range of other symptoms, including:

- Skin rash, which one participant described as “red polka dots”
- Issues with ridged or pitted nails
- Headaches as a result of scalp psoriasis
- Temperature fluctuations, which one participant described as “you’re either very hot or very cold” – a statement that resonated with other participants in the audience
- Constant fatigue, which several participants believed is a consequence of their other psoriatic symptoms such as itching, burning, and pain.

Symptom Triggers

Throughout the discussion, participants described a range of triggers that affect the recurrence and severity of their symptoms, described below.

- Many participants identified **stress** as a primary trigger for their symptoms of dermal psoriasis. Participants added that there is a negative feedback mechanism between stress and their symptoms: their symptoms cause them stress, which in turn leads their symptoms to “flare,” which leads to more stress.
- Several participants commented on **changes in weather**. One participant said, “When it gets colder and dryer, all of a sudden everything aches everywhere.”
- Some female participants commented on the effects of **hormonal changes**. One participant noted that during puberty, her psoriasis “seemed to go into remission.” Another woman commented with the onset of pre-menopause and menopause, her psoriasis is worsening. A few women discussed that during pregnancy they had to stop their psoriasis treatments yet were surprised that their psoriasis did not get worse. However, a participant added that after she had her baby, her psoriasis started coming back. A web participant added that, “My psoriasis came back like wildfire after my third son was born.”
- Participants also highlighted the effects of **diet**. One participant shared that there is a difference in “the redness of my skin if I drink more than one beer.” Other dietary triggers mentioned include dairy and grains.

- Several participants identified **lotions** as a major trigger for their “flare-ups.” One participant shared that applying lotion to their affected skin is “like pouring gasoline on a burning fire... you’re absolutely in excruciating pain.”
- Other triggers also mentioned included prolonged exposure to sunlight, sweat, aging, and other medical conditions. One participant explained that when they sweat their “skin starts itching more.” Another participant shared that having an infection and treating it with antibiotics triggered her psoriatic symptoms.

Good day versus Bad day

Participants discussed how their psoriatic symptoms varied between a good day and a bad day. One participant commented that on her best day, “I pretend I don’t even have psoriasis. I forget it’s there,” while about her worst days she said, “I spend the day trying to forget I have psoriasis because it’s always there.” The same participant shared that in the past ten to twelve years, she had clear skin at only one point: “all but the most stubborn of last patches were gone and it was great.” Another participant commented that on the best days, “I can wear clothes that don’t have to cover my psoriasis” and on worst days, “I am embarrassed to leave the house when I’m unable to wash off the treatment residue from my hair and body.”

Psoriatic Arthritis

While the meeting primarily focused on the dermal symptoms of psoriasis, nearly half of the participants indicated also having been diagnosed with psoriatic arthritis. During the meeting, FDA asked, “For those of you who live with both the skin and arthritis aspects, which one is more significant to you on a day to day basis?” By a show hands, a majority of participants with psoriatic arthritis indicated that the arthritis-related symptoms were more significant. As one web participant commented, “psoriatic arthritis by far has the most devastating effects.” Another web participant noted that often one set of symptoms (either dermal or arthritic) is “exacerbated” or the other. For example, another participant explained that “usually if the psoriatic arthritis is addressed well, then the skin flares.”

Overall impact of psoriasis on daily life

Both in-person and web participants described the impact that their condition has on daily life. The impact of psoriasis on daily life as a child or adolescent - provided by participants younger than the age 18, caregivers, as well as adult participants who had been diagnosed as a child - was underscored throughout the meeting. In order to highlight these impacts, this section has been segmented into pediatric and adult perspectives on impacts of psoriasis on daily life.

Pediatric perspective on the impacts on daily life

- **The ability to perform activities.** Participants described the toll that their symptoms has on the child’s ability to perform activities, especially in school. One caregiver commented, “The physical limitation for [my son] is at school... if he has to run, his feet crack... if he has to do push-ups he can’t because his hands are cracked... he can’t play sports due to his feet because he can’t wear the shoes...” Another caregiver shared, “I had a kid who wanted to be on a swim

team. Oh, knees are all swollen, can't go. I got a kid who wants to play soccer. Oh, dear, you know, arthritis and the skin are just going to prohibit that."

- **Embarrassment.** Participants also described the overwhelming feeling of embarrassment and lack of self-confidence. One participant commented, "High school is not really the best time to add in a layer of lacking self-confidence. On top of everything else, I was embarrassed about how my skin looked. It was all over my arms, my legs, my scalp, and it felt like everyone was staring at me, and some of them were." A caregiver added, "Specifically to a child, psoriasis means something different. It means hiding. It means feeling ashamed and it means being ashamed, and it means thinking twice before being yourself. No child should have to think twice before learning to express themselves."
- **Stigma and social discrimination.** Participants shared several experiences with stigma and social discrimination, often in the form of social isolation and bullying. For example, one participant commented, "As a child I wouldn't be asked to play with a group because moms didn't want their children to play with me because they might catch it." A caregiver commented, "We were kicked out of a water park because I didn't have documentation that my son didn't have a contagious disease." Another caregiver shared, "Kids [were] bullying him. They don't want to shake his hand. He's come to the conclusion that he'll just tell them that he glued his hands together and he snatched them apart and that's why his hands are white and scaly." A few participants also commented that people often confused the manifestation of their dermal symptoms with other stigmatized conditions, such as lice.
- **Severe emotional impact.** The discussion of the impact of living with psoriasis as child or young adult clearly demonstrated that psoriasis is an especially debilitating condition to live with at a young age, with a devastating social and emotional toll. One caregiver shared, "I have an 11-year old son who has psoriasis and psoriatic arthritis. Two years ago [he] admitted to his dermatologist that he had thoughts of suicide."

Adult perspectives on the impacts on daily life

- **The ability to perform activities.** Adult participants shared that their symptoms, particularly itching, flaking, scaling, and pain, have significant impacts on their ability to manage their work, households, and personal care. One participant commented, "My husband had to help me do everything from walking to taking a bath, going to the bathroom, cleaning the house, and cooking." Another participant shared that his symptoms impacted his career: "Even though I was very qualified, I didn't feel I could find a new job the way I looked. Ultimately, I had to leave my job after a flare." Several participants commented on the specific impacts resulting from the inconsistency and unpredictability of their condition. One participant explained, "If you join a team you can play this week but you can't play next week." A web participant expanded stating that "you wake each morning never knowing where your pain is going to be."
- **Decreased social interaction and impact on relationships.** Many participants commented that the flaking, itching, and scaling has led to social isolation. One participant commented, "It's like snowing every day everywhere I go. [My husband] said, why don't you vacuum this? It was very difficult for him to understand what I was going through." Participants also commented that fatigue affected their relationships. One participant shared, "My energy level

goes up and down, I make plans and I cancel, and I make plans and I cancel. And people get to where they think I'm flaking out. They get offended. And they don't believe me because I don't look sick."

Several participants commented on the impact that psoriasis has on sexual intimacy. One participant shared, "When I flared in my mid-adulthood it was so bad that my husband was afraid to touch me. It hurt if I had intercourse and it hurt him in other ways seeing me that way." Another participant stated, "Scales tend to become very sharp and rough rubbing against an extremely soft skin. I was able to prepare my skin and reduce the scaling before intimacy, but within a few days the scales were all back."

- **Embarrassment.** Participants shared stories of embarrassment that they or their loved ones have experienced because of their dermal symptoms, especially the flaking. For example, one participant shared, "I traveled and would wake up with a pile of scales on the bed. I had to purchase a small electric vacuum cleaner [and] I would clean the bed and I'd clean the floor because I was too embarrassed to leave myself behind." Participants also discussed the embarrassment of constantly having itch. For example, one participant commented, "I have psoriasis also in the genitals and when it starts itching so badly, how do you scratch your genitals, especially in the office?"
- **Stigma and Social Discrimination.** During the meeting, a clear distinction was made between people who simply do not know how to react to a patient's dermal psoriatic symptoms and people who treat it as a stigma and engage in social discrimination. Below are several examples:
 - "I have been shamed publicly and asked to leave public places such as a pool and nail salon."
 - "Just a month ago I got into a hot tub and some people got out."
 - One participant said that he was once asked to leave a public pool because he "might infect somebody with the stuff that I had on my body."
 - "My past employer, when I was flared the most, would ask me to please try to deliver [my presentation] from the furthest end of the boardroom so [the clients] couldn't see [my psoriasis] and [my employer] went so far as to give my presentation to somebody else to give."
 - One participant shared that she was asked to take an AIDS test, which "was very embarrassing, very humiliating." A web participant added, "Even these days, people fear the bleeding because I 'might have AIDS.' That's mortifying."
- **Severe emotional impact.** FDA asked, by a show of hands, how many participants missed days from work and school because of the emotional toll of their symptoms and a majority of participants raised their hands. FDA also asked, by show of hands, the participants how many had sought treatments for depression and anxiety that had resulted from all of the other impacts of psoriasis: several participants stated they had experienced this. A web participant added, "The emotional toll is gigantic."
- **Worry about the future.** Participants expressed significant worry, anxiety, and fear for the future facing the challenges of psoriasis. One participant expressed this anxiety and fear by stating, "Every single morning waking up and seeing more every single day...and then the insane fear that it's all going to come back." Another participant added, "As each year goes

by...you have two or three or four or five more psoriasis spots and you always have the sense of what's going to happen the following year?"

Participants also commented on the destructive impact of psoriasis on multiple generations of their families. For example, one participant shared that along with her, her mother, her grandmother, a couple of cousins and a couple of aunts also have psoriasis. One participant commented that her son "is very adamant about adopting children because he does not want to have any to pass this [psoriasis] on." Another participant voiced, "Growing up with psoriasis and then having it throughout my adulthood, one of my most difficult decisions I had to make was my desire not to have any children."

- **Other daily impacts** mentioned by participants include their ability to concentrate, their ability to fall asleep or stay asleep, and the significant amount of time it took to manage their symptoms daily.

Topic 2: Patient Perspectives on Treatments for Psoriasis

The second discussion topic focused on patients' experiences with therapies used to treat their psoriasis. Five panelists (Appendix 2) provided comments to start the dialogue. They included:

- A 28 year-old male who was diagnosed with plaque psoriasis eight years ago. His previous treatments included topical, oral, and injected treatment regimens as well as phototherapy and non-drug therapies. He considered his psoriasis to be controlled with his current regimen.
- A 62 year-old male who had been diagnosed with psoriasis in his late 20s. He had been on the same biologic treatment regimen for over 11 years and considered his psoriasis to be well-managed.
- A 36 year-old female with palmar/plantar psoriasis who considered her psoriasis not well managed with her current treatment regimen.
- A 45 year-old female who has had psoriasis since the age of 8, and considers her condition well managed with her current treatment regimen, which includes lifestyle changes.
- A 39 year-old female who also lives with fibromyalgia, asthma, and medical issues related to her liver, eyes, and thyroid. She considered her psoriasis to be somewhat controlled with her current biologic treatment regimen, or in her words, "better than anything else I have tried."

In the large-group facilitated discussion that followed, patients and patient representatives discussed their experiences with prescription drugs, medical procedures, and non-drug therapies. Participants' perspectives on the benefits and downsides of these treatments and on considerations regarding treatment decisions are summarized below. This section ends with participants' perspectives on what they would look for in an ideal treatment.

Perspectives on current treatments

Participants described complex regimens that included multiple prescription medicines to help manage their psoriasis:

- Almost all participants reported (Appendix 3, Q11) use of topical treatments (such as corticosteroids, retinoids, Vitamin D analogue, anthralin, calcineurin inhibitors, salicylic acid) to help manage their psoriasis.
- Approximately three-fourths of the participants indicated having used oral or injected medications (such as methotrexate, acitretin, cyclosporine, apremilast and biologics (including Enbrel (etanercept), Humira (adalimumab), Stelera (ustekinumab), Remicade (infliximab) and Cosentyx (secukinumab))). Participants commonly used the term biologics when referring to these treatments.
- Over half the participants indicated having used phototherapy.
- Over half the participants indicated having used other prescription or non-prescription medications, including pain medications, anti-anxiety medications, sleep aids and a few over-the-counter non-steroidal anti-inflammatory drugs.

Participants' experiences with the various types of treatments are summarized below.

Oral or injected medications (such as systemic or biologic medications)

Participants acknowledged the important benefits that their current treatments, especially the biologic treatment regimens, provide. However, participants offered widely variable experiences with respect to the effectiveness of their specific medications. For some participants, medications that they have been on for several years have, as one participant described, "worked beautifully." Others commented on seeing improvements from treatments they have been on merely for months. A few indicated that they considered themselves to be nearly cured. For example, one participant commented, "Within 60 days after receiving the [biologic] I was almost clear. That was over 11 years ago and I have been pretty clear ever since, almost to the point I feel I have been cured." Many participants were able to articulate specific benefits of their treatments, in terms of a percentage improvement or clearance (e.g., "40% improvement" or "80% clear"), an amount of time without flare ups, or a reduction in specific symptoms. For example, one participant described the effects of a particular biologic as "a very, very significant change, because the plaque has gone down. The redness has gone down significantly too. The itching is still there, but it's not as severe."

Many participants, however, commented on the limits to their medications' benefits. Several participants commented that while their treatments are effective in clearing their dermal symptoms, such as flaking and scaling, they do not manage well the itching, burning and pain. For example:

- "Biologics have... really cleared me up for at least 70 percent of the time," [but] it "never stops the itch, it never stops the cracking or the bleeding."
- "Biologics work really great on the visible aspect, [but] it's all of the invisible things... related to this disease that it doesn't get addressed, like the fatigue, the itch, the burning... and being able to figure out how to address [those aspects] is paramount to being able to lead a normal life."
- "[The biologics I've taken] doesn't get rid of the itch and it doesn't get rid of the burning."

To follow up on these comments, FDA asked participants whether the residual itching, burning and pain were limited to areas where their dermal symptoms had been located. By a show of hands, several participants indicated that this was the case. A few participants, however, indicated that the itching, burning and pain were underlying everywhere throughout their body, and not localized to specific areas. Some participants commented that medications that initially worked for them have lost effectiveness over time. For example, one participant commented, “[I have] become immune to most of them after about 12 or 18 months.” Another participant commented that her biologic treatment is “only working for two weeks and I stretch that as long as I possibly could because I know there’s only a finite amount of choices that I have for biologics at this time.” A caregiver of a pediatric patient taking a combination of a systemic drug and a biologic shared, “we’re at a point right now where they’re working for the most part, but we’re getting slight patches [re-emerge].” One participant expressed that his “biggest fear now is that [my biologic] will stop working.”

In contrast, several participants commented that specific treatments have had no effect (e.g., “provided little relief”), or even a worsening effect, on their dermal symptoms. For example, one participant stated that her treatment “did absolutely nothing” for her and after three years on the treatment it gave her a “bad, bad flare,” which took three years to recover from.

Treatment downsides

Despite the benefits of their treatments, participants noted the treatments can be burdensome, as described below.

- Participants described **significant side effects**, including fatigue, nausea, fluctuations in weight, increased facial hair growth, nose bleeds, increased blood pressure, headaches, and palpitations. Participants described having to control or learn to live with these side effects. A web participant commented, “The side effects are always on my mind.” Others commented on the intolerability of the side effects which precluded them from using particular medications. Several participants also expressed concern regarding the long-term effects of drugs and how side effects might change due to prolonged use.
- Some participants expressed concern about **biologics “compromising the immune system.”** As one participant explained, “Having to stop therapy when fighting a virus makes for a long time off and then a longer time for the treatment to start working again.” Another participant echoed, “I started a biologic. It worked amazingly for 8 months and then I caught a virus and had a whole body flare up that was debilitating.”
- Some participants expressed concern that while their treatments might address specific symptoms, they can also lead to **worsening of other psoriatic symptoms or development of new conditions**. For example, a participant who found success with systemic and biologic treatments for their “clear skin” developed “symptoms of IBS, uveitis and psoriatic arthritis.”
- Several participants commented on the **burden of treatment infusions or required blood work**. For example, one participant described having to “take one afternoon off every four weeks and spend about three to four hours in the hospital to get my infusion... [and because of the fatigue effects] I sleep through the whole weekend until Monday when I’m ready to go to work.” Another participant said that she drives three hours to her infusion clinic and then has to wait an additional two hours “because [the providers] want to make sure I show up, because it’s a

very expensive medication.” A participant also commented on the need to keep the drug refrigerated, but then having to wait until the medication reaches room temperature before injecting.

- **Access to medications**, especially biologics, was also identified as an issue. Several participants shared that their step-therapy insurance policies reimburse biologics as a last resort, regardless of healthcare provider recommendation.
- Participants commented on the **significant out-of-pocket costs** for treatments not covered by insurance. For example, one participant described having “single handedly bankrupted my family in college ... trying to help pay for my healthcare.”

Participants reiterated that although their treatment regimens can be challenging to manage in daily life, their desire to manage their significant symptoms, as one web participant stated, “Tops any other concerns.”

Participants also emphasized the unmet medical need for treatments for the pediatric population living with psoriasis. A pediatric clinician who was diagnosed with psoriasis as a child stressed the need for more and better treatments and commented: “When I was diagnosed with psoriasis, severe psoriasis as a child over 32 years ago my treatment options were topical therapies, which took hours a day, light therapies which are very difficult on my family, and methotrexate, which had a lot of side effects. Over 30 years later these are the exact same options that I can offer my patients.”

Phototherapy

Many participants commented on their experiences with phototherapy. A participant with a home UVB three-panel light box shared that the treatment “dramatically changed my life,” and that “I’ve gone from 120 spots to three or four in over the past year.” While several participants shared that phototherapy worked well for them, others stated that they had less success with phototherapy. One participant stated that it “left their skin feeling sunburned and tight.” A web participant “suffered from the Koebner effect [lesions]” after 35 weeks of phototherapy, and stopped. A participant, who had been using phototherapy for over 20 years, shared that “although it controlled my psoriasis, it never cleared to more than 80%.” A few participants commented about fear of skin cancer.

Several participants also commented on the use of phototherapy in combination with other medical products. For example, one participant shared, “after three months on [a biologic] with no positive results, my doctor added UV therapy to the regimen. This combination worked. My skin cleared up and my nails grew back normally.”

Perspectives on non-drug therapies

In response to a polling question (Appendix 3, Q12), most participants indicated using one or more non-drug therapies to manage their psoriatic symptoms. Nearly all participants said that they value the benefits they see in non-drug therapies. About one third of the participants indicated having used over-the-counter products, such as coal tar, salicylic acid, and Epsom salt. Slightly more than one-fourth of participants indicated the importance of complementary or alternative therapy, including exercise and meditation, to manage their psoriasis symptoms. Participants also noted that they incorporated diet modifications as part of their treatment regimen. These included: eliminating alcohol, sugar, processed

foods, drugs, gluten, and tobacco. Other non-drug therapies included a variety of dietary supplements (such as turmeric, vinegar tablets, Vitamin D), in addition to use of aloe vera, coconut oil, salt water, mineral baths, hot springs, dead sea salt, combination of rain water, coconut milk, juice from hot pepper leaves and bentonite clay.

Perspectives on choosing or changing treatment

Throughout the day, participants described a complex process of trial and error to find an effective multi-modal approach (including drug, phototherapy, and non-drug therapies) to fit their specific needs. FDA was particularly interested in hearing how participants approach decision making with respect to starting, continuing, or stopping a medication. A few participants shared that they had little or no control in changing their treatments. One participant commented, “Every change in therapy has been due to a lack of response to the therapy.” While some participants stated that they were able to determine whether a medication is or is not effective immediately, others shared that they try a medication for a few months before making changes. For example, one participant shared, “I’m not opposed to trying [a treatment] on a short-term basis to see how my body responds to it. If my psoriasis responds favorably to the treatment... then I need to re-evaluate at that time the benefits and the risks of a long-term regimen.”

Participants also expressed frustration with periods of off-time, which was described as periods of time in between medications when their symptoms would often flare or be exacerbated. One participant commented, “The worst thing about all the medication changes has been like going through the loading doses. Sometime you have to go through 8 or 12 weeks of loading doses and then you have to wait another eight or 12 weeks to see if they work, so switching all these medications sometimes to find out if anything works, sometimes you’re at, you know, five or six months.”

In order to gain additional insight, participants were also presented with a hypothetical scenario on availability of a new psoriasis treatment (see Q15 in Appendix 3 for the full scenario). Participants were provided with brief information on the clinical trial data and side effects and were then asked what thoughts first came to mind after hearing this scenario and what questions they would pose to their healthcare provider. A few participants indicated their interest (“sign me up”) explaining that any new medication that might reduce their symptoms was worth a try. Other participants raised questions: whether the treatment was an immunosuppressive; how this new medication might affect their co-morbid conditions (such as psoriatic arthritis); and how might this treatment work in comparison to their current treatment. Several participants wanted more information regarding the side effects, including the frequency of the side effects and any long-term effects. Several participants also expressed concern regarding the administration, availability, or cost of the medication.

Perspectives on ideal treatments for psoriasis

FDA was interested in understanding the participants’ perspectives on the types of clinical benefits that might be most meaningful to them. In response to polling question (Appendix 3, Q14), participants identified reduced scaling or flaking and reduced itching as benefits they would consider to be the most meaningful when considering a new treatment for psoriasis. Participants also identified a reduction in the number of plaques, reduced pain or soreness, and reduced redness and inflammation as meaningful benefits. However, one participant clarified that “none [of the benefits alone] would be meaningful without treating the others.”

Participants also stressed the need to enhance the treatment armamentarium, given current challenges with variability in effectiveness, tolerability, access to available treatments, and uncertainty regarding long-term effects of available treatments. One participant commented that “[we] wish we had more than those on the market to choose from.” Several participants commented on the need to advance treatments that are not immunosuppressive. A participant commented, “I don’t want something that lowers my whole immune system. We treat [psoriasis] like cancer [and] treat the whole body instead of the target.” A few participants who had seen remission of their symptoms during pregnancy encouraged further research to better understand why or what causes remission during pregnancy. Other aspects of ideal therapy included: developing drugs with fewer side effects, medication that is effective for longer periods of time, and a treatment that could prevent psoriasis from being inherited.

In addition to their perspectives on ideal therapies, participants throughout the meeting commented on other issues that they believed are important to any discussion on psoriasis healthcare, including early and more accurate diagnosis and fast tracking the approval of effective psoriasis treatments.

Summary of Comments Submitted to the Public Docket

Eighty-four comments were submitted to the public docket that supplemented the Patient-Focused Drug Development public meeting on psoriasis. The majority of comments were submitted by patients and caregivers; some comments were submitted by health care providers, professional organizations, patient groups and expert researchers, including: American Academy of Dermatology Association, Amgen, International Federation of Psoriasis Associations, LEO Pharma, National Psoriasis Foundation (included a survey), Pediatric Dermatology Research Alliance, and PatientsLikeMe (included a survey). The two submitted surveys² examined patients’ and caregivers’ perspectives on their most significant symptoms, the impact of psoriasis on quality of life, and treatment options.

Overall, the comments received in the docket reflected the experiences and perspectives shared during the March 2016 public meeting. The following is a highlight of these comments, with particular focus on experiences or perspectives that were not raised or addressed in detail at the meeting.

Submitted comments on symptoms of psoriasis

Comments submitted to the public docket emphasized the burdensome nature of psoriasis. Docket commenters identified all of the symptoms of psoriasis that were discussed during the public meeting. Symptoms were also addressed through the submitted surveys. For example, similar to public meeting, itching, scaling, and flaking were identified as significant symptoms in the National Psoriasis Foundation survey. The PatientsLikeMe survey also identified insomnia and fatigue as commonly reported symptoms. Docket commenters provided many insightful descriptions of the specific ways in which their symptoms manifest. A few select examples are presented below:

² Survey comments may be viewed within the Federal Register Public Docket Comments: <https://www.regulations.gov/docket?D=FDA-2015-N-4166>. FDA has not conducted a thorough review of the design, conduct or analysis of these surveys. This report may reference select survey results, which should be considered illustrative of results either reiterated or expanded upon input from the March 17, 2016 meeting.

- **Itching.** Commenters described the constant urge to itch, that often makes it difficult to think about or do anything else. One commenter shared, “Imagine having the worst case of poison ivy all over your body. And on top of that, having an intense rug burn.” Another commenter stated, “I always scope out sharp edges when I walk in a room so I know where I can scratch. Ninety percent of my furniture started out with sharp edges and are now rounded from my scratching.”
- **Dry, cracked skin that may bleed.** Several commenters reiterated the painful manifestation of dry, cracked skin that results from plaque and scratching. One caregiver commented that her loved one’s “condition is so severe that her hands and feet bleed with each movement. At times, she can’t walk because she has deep cuts on her feet.” Another commenter shared that after the skin cracked and bled, a “MRSA infection would develop in the open wounds.”
- **Pain.** Similar to what was discussed during the public meeting, commenters characterized their pain as a chronic widespread pain that may be experienced throughout the body. One commenter stated that the pain was “from head to toe,” while another shared that the pain is for “months on end, not just occasionally.” One docket commenter added, “Even with potent pain medication that pain was almost unbearable.”

In addition to the triggers that we heard during the public meeting, one docket commenter mentioned chlorine as a trigger for their symptoms.

Submitted comments on the overall impact of psoriasis on daily life

The docket comments reflected the input received during the meeting related to the debilitating impact of psoriasis on patients’ daily lives, and its significant toll on patients and their families.

- **Impact on careers.** Many commented that their symptoms limited their ability to perform their job and participate in activities. Some also added that their condition presented a barrier in pursuing or advancing their career. For example:
 - “Over the years, I have had no choice but to quit jobs because the pain can get unbearable.”
 - “I can no longer do a job where I am on my feet.”
 - “I have been asked by bosses to ‘cover-up’. It is extremely difficult to get a job when they are focused on how you look.”
 - “The thoughts of pursuing my dream career have become just that, thoughts.”
- **Impact on relationships.** Commenters discussed that relationships were often stressed or lost due to their psoriasis. One commenter shared that “pain, soreness, and self-shame on my part interferes with our physical relationship.”
- **Embarrassment.** A common theme in the submitted comments was the embarrassment too frequently experienced when living with psoriasis. One docket commenter shared, “I am a mid-20s woman left feeling unattractive because I am unable to do something as simple as shave my legs.” Another commenter stated, “I remember back to the days when I was single when my body was 80% covered with psoriasis plaques wondering who could love me. As a 16 to even 25 year old male, this is something I had to struggle with mentally.”

- **Stigma and social discrimination.** Similar to the participants at the public meeting, many docket commenters highlighted their experiences in facing stigma and social discrimination as a debilitating impact of psoriasis. One docket commenter shared, “My step-mother-in-law told me she didn’t want me in her house because it took her hours to clean up my skin after I left, and she was ‘grossed out’ so much that she wanted to throw her vacuum out.” Another commenter said, “All of the glances, glares, and whispers made me feel so small and so low. People avoided me, and I guess I can’t blame them.” One commenter wrote, “I continue to wear the emotional scars of adolescent teasing, embarrassment, the humiliation of having to shower with peers after PE class, as well as the obvious dating and intimacy issues.”

Submitted comments on current treatments for psoriasis

The submitted comments about experiences with treatments were similar to those expressed at the public meeting.

- **Topical.** Although topical treatments were not discussed in detail at the public meeting, docket commenters shared more detailed experiences with topical treatments. Several commented on the short-term effectiveness of the treatments. One commenter shared that a range of topical treatments “helped relieve the itch and pain to some extent but would stop working after a few months.” A few comments discussed other downsides of topical treatments, including one commenter who stated that the topical treatments “often ruined my clothing and made my hair greasy, so I had to plan when to apply them. Such side effects definitely impact whether or not I’m going to continue to use a product long-term.”
- **Oral or injected medications (including biologic medications).** Comments on the experiences with oral or injected medications largely reflected what was heard at the meeting. Some commenters highlighted the effectiveness of their treatments. For example, one commenter who had been taking a biologic for over three years shared, “I am 95-97% clear. It truly works to treat my severe psoriasis, and is a life changer and saver for me.” Another commenter, also taking a biologic, stated, “Hands and feet look so much better, but more importantly, I am finally comfortable in my own skin! My thick skin is receding, [with] no more deep cuts, and the rash is continually fading each day. It is not an overnight cure, but it is consistent improvement.” However, the same commenter also discussed the side effects of her treatment, including headaches, increased bowel movements, weight loss and nausea, all of which were mentioned by other docket commenters as well.

A few docket commenters discussed more negative experiences with their treatments. One commenter on a biologic for five weeks stated, “I had a very serious reaction and had to stop (inverse psoriasis all over, red skin, felt hot all the time, itchy everywhere).” Some commenters also described some of their treatments as ineffective. For example, one commenter on a biologic commented, “I am still not seeing clearing of the severe plaque psoriasis that covers a lot of my body, [it] is constantly stinging and burning, very painful, mind altering and quite disgusting looking, and the burning red plaque on my hands, feet and bottom.”

- **Phototherapy.** Commenters described experiences with phototherapy with varying degrees of effectiveness. One commenter stated, “I can experience 70-90% clearance for 3-5 years with narrow band.” Another commenter shared, “while my scales disappeared, I still had an intense

subcutaneous itching and burning.” A couple of commenters also mentioned their experiences with a Grenz Rays treatment.

- **Other therapies.** The docket comments described a range of additional therapies, including lotions (such as Amlactin), shampoos, peroxide, hair dye, lemons, probiotics, tea tree oils, aloe vera, Vitamin E, Vitamin D/betamethsone/calcipotriene 0.005%, fluocinolone scalp oil 0.01%, epsom salts, and Dead Sea salts. Commenters also discussed the benefits of lifestyle changes such as quitting smoking, reducing alcohol intake, and other dietary modifications.

Submitted comments on ideal treatments for psoriasis

Several commenters provided their perspectives on ideal treatments for psoriasis. Aspects of ideal treatments included medication that is effective for longer periods of time, better symptom control, fewer side effects, and affordability. One commenter stated an ideal treatment would be, “one where psoriasis doesn’t show itself on the outside of [the] skin, the itching is minimal to none – and there is no other residual pain or soreness on skin or joints.” Many docket comments emphasized the need for furthering research in drug development for the pediatric population living with psoriasis. Finally, several commenters stressed the need for expedited drug approvals.

Conclusion

This Patient-Focused Drug Development meeting on psoriasis provided FDA the opportunity to hear from patients and caregivers first-hand the significant and debilitating impact that psoriasis has on their lives. FDA recognizes that patients have a unique ability to contribute to our understanding of the broader context of this chronic disease, which is important to our role, and that of others, in the drug development process. As Dr. Kendall Marcus, Director of the Division of Dermatology and Dental Products, voiced during her closing remarks, patients and caregivers at the meeting really put a face to psoriasis for the FDA.

FDA is grateful to the patients and caregivers who so thoughtfully, generously, and indeed courageously shared their personal stories of living with psoriasis. Through this meeting, FDA learned more about what matters most to patients and caregivers regarding symptoms, impacts, and aspects of psoriasis treatments. The participants’ sense of community and their desire to advocate for current and future generations at risk for psoriasis were strikingly clear. FDA shares the patient community’s desire and commitment to furthering the development of new safe and effective drug therapies to treat psoriasis.

Appendix 1: Meeting Agenda and Discussion Questions



Public Meeting on Patient-Focused Drug Development for Psoriasis

March 17, 2016



9:00 – 10:00 am	Registration
10:00 – 10:05 am	Welcome Sara Eggers, PhD <i>Office of Strategic Programs (OSP), Center for Drug Evaluation and Research (CDER), FDA</i>
10:05 – 10:10 am	Opening Remarks Kendall Marcus, MD <i>Director, Division of Dermatology and Dental Products (DDDP), CDER, FDA</i>
10:10 – 10:20 am	Overview of FDA's Patient-Focused Drug Development Initiative Theresa Mullin, PhD <i>Director, OSP, CDER, FDA</i>
10:20 – 10:35 am	An Overview of Psoriasis and Available Treatments Jane Liedtka, MD <i>DDDP, CDER, FDA</i>
10:35 – 10:40 am	The Road from PFDD Meetings to Clinical Trial Endpoints Yasmin Choudhry, MD <i>Clinical Outcomes Assessment (COA) Staff, Office of New Drugs (OND), CDER, FDA</i>
10:40 – 10:45 am	Overview of Discussion Format Sara Eggers, PhD <i>OSP, CDER, FDA</i>
10:45 – 11:15 am	Panel #1 Discussion on Topic 1 Topic 1: Disease symptoms and daily impacts that matter most to patient. A panel of patients will provide comments to start the discussion.
11:15 – 12:30 pm	Large-Group Facilitated Discussion: Topic 1 Patients and patient representatives in the audience will be invited to add to the dialogue.
12:30 – 1:30 pm	Lunch
1:30 – 1:35 pm	Afternoon Welcome Sara Eggers, PhD <i>OSP, CDER, FDA</i>
1:35 – 2:05 pm	Panel #2 Discussion on Topic 2 Topic 2: Patient perspectives on current approaches to treating psoriasis. A panel of patients will provide comments to start the discussion
2:05 – 3:20 pm	Large-Group Facilitated Discussion: Topic 2 Patients and patient representatives in the audience will be invited to add to the dialogue.
3:20 – 3:50 pm	Open Public Comment
3:50 – 4:00 pm	Closing Remarks Kendall Marcus, MD <i>DDDP, CDER, FDA</i>

Discussion Questions

Topic 1: Disease symptoms and daily impacts that matter most to patients

1. Of all the symptoms that you experience because of your condition, which 1-3 symptoms have the most significant impact on your life? (Examples may include red, thickened, scaling skin, itching, burning or soreness, etc.)
2. Are there specific activities that are important to you but that you cannot do at all or as fully as you would like because of your condition? (Examples of activities may include sleeping through the night, daily hygiene, participation in sports or social activities, intimacy with a spouse or partner, etc.)
3. How do your symptoms and their negative impacts affect your daily life on the best days? On the worst days?
4. How have your condition and its symptoms changed over time?
 - a) Would you define your condition today as being well managed?
5. What worries you most about your condition?

Topic 2: Patients' perspectives on current approaches to treatment

1. What are you currently doing to help treat your condition or its symptoms? (Examples may include prescription medicines, over-the-counter products, phototherapy, and other therapies including non-drug therapies such as diet modification.)
 - a) How has your treatment regimen changed over time, and why?
2. How well does your current treatment regimen control your condition?
 - a) How well do your treatments address specific skin symptoms? Which symptoms are not addressed as well?
 - b) How well have these treatments worked for you as your condition has changed over time?
3. What are the most significant downsides to your current treatments, and how do they affect your daily life? (Examples of downsides may include going to the hospital or clinic for treatment, time devoted to treatment, etc.)
4. Assuming there is no complete cure for your condition, what specific things would you look for in an ideal treatment for your condition?
 - a) What would you consider to be a meaningful improvement (for example symptom improvements or functional improvements) in your condition that a treatment could provide?
5. What factors do you take into account when making decisions about selecting a course of treatment?
 - a) What information on the potential benefits of these treatments factors most into your decision?
 - b) How do you weigh the potential benefits of these treatments versus the common side effects of the treatments? (Common side effects could include headache, nausea, injection site reactions)
 - c) How do you weigh potential benefits of these treatments versus the less common but serious risks associated with the treatments? (Examples of less common but serious risks are infections, cancer, liver damage, kidney damage, birth defects, blood disorders, etc.)

Appendix 2: Patient and FDA Panel Participants

Patient Panel, Topic 1

- Ellen Clements – patient
- Marie Griffiths – patient
- John Latella – patient
- Diane Talbert – patient
- Christina Tom - patient

Patient Panel, Topic 2

- John Earley - patient
- Pantshia Gardner - patient
- Caleb Sexton - patient
- Sarah Truman – patient
- Aimes Vasquez - patient

FDA Panel

- Kendall Marcus (Division of Dermatology and Dental Products (DDDP), Office of New Drugs (OND), Center for Drug Evaluation and Research (CDER))
- Julie Beitz (Office of Drug Evaluation III, Office of New Drugs (OND), CDER)
- Jill Lindstrom (DDDP, OND, CDER)
- Jane Liedtka (DDDP, OND, CDER)
- Hon Sum Ko (DDDP, OND, CDER)
- Roselyn Epps (DDDP, OND, CDER)
- Patricia Brown (DDDP, OND, CDER)
- Yasmin Choudhry (Clinical Outcomes Assessment Staff, OND, CDER)
- Theresa Mullin (Office of Strategic Programs, CDER)

Appendix 3: Meeting Polling and Scenario Questions

The following questions were posed to in-person and web meeting participants at various points throughout the March 17, 2016, Patient-Focused Drug Development for Psoriasis public meeting. Participation in the polling questions was voluntary. The results were used as a discussion aid only and should not be considered scientific data.

Demographic Questions

1. Where do you live?
 - a. Within Washington, D.C. metropolitan area (including the Virginia and Maryland suburbs)
 - b. Outside of the Washington, D.C. metropolitan area

2. Have you ever been diagnosed as having psoriasis?
 - a. Yes
 - b. No

3. Have you ever been diagnosed with psoriatic arthritis?
 - a. Yes
 - b. No

4. What is your age?
 - a. Younger than 18
 - b. 18 – 29
 - c. 30 – 39
 - d. 40 – 49
 - e. 50 – 59
 - f. 60 or greater

5. Do you identify as:
 - a. Male
 - b. Female

6. What is the length of time since your psoriasis diagnosis?
 - a. Less than 5 years ago
 - b. 5 years ago to 10 years ago
 - c. 10 years ago to 20 years ago
 - d. More than 20 years ago
 - e. I'm not sure

7. What type of psoriasis do you have? **Check all that apply.**
- a. Plaque (such as raised, red patches covered with silvery white flaky buildup)
 - b. Guttate (such as small, dot-like lesions)
 - c. Inverse (such as very red lesions in body folds)
 - d. Pustular (such as white pustules surrounded by red skin)
 - e. Erythrodermic (such as widespread, fiery redness and flaking over most of the body)
 - f. Other
 - g. I'm not sure
8. Where is your psoriasis located? **Check all that apply.**
- a. Scalp
 - b. Face
 - c. Hands or feet
 - d. Nails
 - e. Trunk, arms or legs
 - f. Skin folds (such as armpit, fold between buttocks)
 - g. Genital area (such as groin)
 - h. Other skin areas not mentioned

Question for Topic 1

9. Of all the non-joint symptoms you have experienced because of psoriasis, which do you consider to have the most significant impact on your daily life? **Please choose up to three symptoms.**
- a. Flaking or scaling
 - b. Itching
 - c. Skin rash
 - d. Skin tightness
 - e. Dry, cracked skin that may bleed
 - f. Pain or soreness
 - g. Burning or stinging
 - h. Thickened, spotted, pitted or ridged nails
 - i. Other symptoms not mentioned
10. What do you find to be the most bothersome impacts of your psoriatic symptoms on your daily life? **Please choose up to three impacts.**
- a. Limitations on activities (such as work, school, sports, hobbies)
 - b. Ability to concentrate or stay focused
 - c. Ability to fall asleep or stay asleep
 - d. Stigma or embarrassment
 - e. Social discrimination
 - f. Impact on sexual intimacy
 - g. Impact on relationships
 - h. Emotional impacts (such as self-esteem)
 - i. Other impacts not mentioned

Questions for Topic 2

11. Have you ever used any of the following medical products (drug therapies or medical devices) to help treat your psoriasis? **Check all that apply.**

- a. Topical treatments (such as corticosteroids, retinoids, vitamin D analogue, anthralin, calcineurin inhibitors, salicylic acid)
- b. Oral or injected medications (such as Methotrexate, Enbrel (etanercept), Humira (adalimumab) Stelara (ustekinumab), Cosentyx (secukinumab), cyclosporine, acetretin, methoxypsoralen)
- c. Other prescription medicine (such as pain medication)
- d. Phototherapy
- e. Other medical products not mentioned
- f. I'm not using any medical products

12. Besides your drug therapies, what else are you doing to manage any symptoms you have experienced because of your psoriasis? **Please choose up to three.**

- a. Dietary and herbal supplements
- b. Diet modifications
- c. Over the counter products (such as coal tar, salicylic acid, epsom salt)
- d. Complementary or alternative therapies
- e. Other therapies not mentioned
- f. I am not doing or taking any therapies to treat symptoms

13. When considering a new treatment for psoriasis, which of the following benefits would you consider to be most meaningful? **Please choose up to three.**

- a. Reduced scaling or flaking
- b. Reduced itching
- c. Reduced redness and inflammation
- d. Reduction in the number of plaques
- e. Reduction in the number of pustules
- f. Reduced pain or soreness
- g. Reduced burning or stinging
- h. Other

14. When considering a new treatment for psoriasis, which ONE benefit would you consider to be most meaningful? **Please choose one.**

- a. Reduced scaling or flaking
- b. Reduced itching
- c. Reduced redness and inflammation
- d. Reduction in the number of plaques
- e. Reduction in the number of pustules
- f. Reduced pain or soreness
- g. Reduced burning or stinging
- h. Other

Scenario

Imagine that a new injectable medication indicated to treat moderate to severe psoriasis has recently been approved by FDA. Your doctor believes that you may be a good candidate for this medication.

In the clinical trials that were conducted, the medication was shown to achieve at least 75% clearance of skin lesions in approximately one-half of adults treated for 3 months.

Common side effects of this medication include fatigue, headaches, weight gain, swelling, sore throat, diarrhea, and upper respiratory tract infection. The drug is also believed to cause rare, but serious side effects, such as liver problems, cancer, stroke, infertility, or birth defects.

What first thoughts come to mind as you hear this scenario? What questions would you ask your doctor about this treatment?

15. Of the following factors, which two would you rank as most important to your decisions about using treatments to help reduce or control the spread of your psoriasis?
- How the medication is administered (such as topical, injection, oral, etc.)
 - The frequency and length of treatment
 - Your access to treatment (for example, insurance coverage)
 - Whether the drug showed effectiveness for the specific benefit that is most meaningful to you
 - The common side effects of the treatment (such as risk of infection, fatigue, etc.)
 - The possibility of rare, but serious side effects (such as blood disorders or certain cancers)
 - Your previous response to a similar treatment
 - Whether there are other treatment options that you can still try

Appendix 4: Incorporating Patient Input into a Benefit-Risk Assessment Framework for Psoriasis

Introduction

Over the past several years, FDA has developed an enhanced structured approach to benefit-risk assessment in regulatory decision-making for human drugs and biologics³. The Benefit-Risk Assessment Framework involves assessing five key decision factors: *Analysis of Condition*, *Current Treatment Options*, *Benefit*, *Risk*, and *Risk Management*. When completed for a particular product, the Framework provides a succinct summary of each decision factor and explains FDA's rationale for its regulatory decision.

In the Framework, the *Analysis of Condition* and *Current Treatment Options* rows summarize and assess the severity of the condition and therapies available to treat the condition. The assessment provides an important context for drug regulatory decision-making, including valuable information for weighing the specific benefits and risks of a particular medical product under review.

The input provided by patients and patient representatives through the Patient-Focused Drug Development Public Meeting for Psoriasis and docket comments will inform our understanding of the *Analysis of Condition* and *Current Treatment Options* for this disease.

The information in the top two rows of the sample framework for psoriasis below draws from various sources, including what was discussed at the Patient-Focused Drug Development Public Meeting for Psoriasis held on March 17, 2016. This sample framework contains the kind of information that we anticipate could be included in a framework completed for a drug under review for psoriasis. This information is likely to be added to or changed over time based on a further understanding of the condition or changes in the treatment armamentarium.

³ Commitments in the fifth authorization of the Prescription Drug User Fee Act (PDUFA V) include further development and implementation of the Framework into FDA's review process. Section 905 of the FDA Safety and Innovation Act also requires FDA to implement a structured benefit-risk framework in the new drug approval process. For more information on FDA's benefit-risk efforts, refer to <http://www.fda.gov/ForIndustry/UserFees/PrescriptionDrugUserFee/ucm326192.htm>.

Dimensions	Evidence and Uncertainties	Conclusions and Reasons
Analysis of Condition	<p>- Prevalence of psoriasis is approximately 2-3% of the United States population</p> <p>-Dermal psoriatic symptoms include scaling, flaking, itching, soreness and pain. Other symptoms may include dry or cracked skin that may bleed, and thickened, pitted or ridged nails.</p> <p>- Symptoms can have considerable detrimental effects on a patient’s quality of life, ability to function in daily activities, and overall social and societal engagement.</p> <p>- <i>See the Voice of the Patient report for a more detailed narrative.</i></p>	<p>Psoriasis is a debilitating chronic disease that places a significant burden on daily life and has a severe impact on how patients feel and function.</p>
Current Treatment Options	<p>- There are a number of FDA approved treatments for psoriasis:</p> <ul style="list-style-type: none"> • Topical treatments (including corticosteroids, retinoids, vitamin D analogue, anthralin, calcineurin inhibitors, salicylic acid) • Oral or injection treatments (including Methotrexate, Enbrel (etanercept), Humira (adalimumab) Stelara (ustekinumab), Cosentyx (secukinumab), cyclosporine, acetretin, methoxypsoralen) • Phototherapy <p>- Many patients include diet and exercise modification and other lifestyle changes as part of their treatment regimen.</p> <p>- <i>See the Voice of the Patient report for a more detailed narrative.</i></p>	<p>Drug treatments that control or manage the symptoms of psoriasis are available for adult psoriatic patients; however, efficacy varies from patient to patient, and significant side effects can limit benefits or preclude the use of these medications. Additionally, frequency of dosing and route of administration can often be burdensome on patients. Thus, there is a continued need for additional effective and tolerable treatment options for patients to improve their quality of life.</p> <p>There is a significant unmet medical need for treatments for the pediatric population living with psoriasis.</p>