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Is it really ever 'just acne'? Considering the psychodermatology of acne

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Abstract

Acne can create a significant burden for people of all ages. However, the psychological consequences might often be overlooked. This review comments on recent evidence in the field of psychodermatology, to highlight the importance of considering a person's mental health in the treatment of acne. A range of presenting issues are discussed, and cases of underserved patients needing additional considerations are highlighted. This article considers how the psychological sequelae can contribute to the pathogenesis of acne, and discusses how psychotherapeutic approaches can be of benefit to people experiencing appearance-related distress. Importantly, attention is paid to the need for clinicians to assess a patient's wellbeing alongside their physical symptoms. In doing this, early intervention can be facilitated if psychological comorbidities are present, with referral to appropriate specialist services, where available. To improve treatment outcomes, the skin and the mind must be addressed together in a multidisciplinary approach to dermatology care.

Our skin is the largest and most visible part of us.[1,2] It protects us, it represents us and it can play a role in defining who we are as individuals.[3] Importantly, our skin facilitates a bidirectional relationship between our outer world and our inner experiences.[1,2] The interactions between a person's environment, emotions, biologic mechanisms and skin disease are closely linked, and there is a need to address the skin and the mind together.

Psychodermatology is a subspecialty of dermatology that focuses on the relationships between the brain, immune system, cutaneous nerves, and the skin.[4] The field combines dermatology with psychology and psychiatry in the management of two areas: (i) patients presenting with primary psychiatric conditions experiencing skin symptoms (e.g. delusional infestation); and (ii) patients presenting with primary skin disease experiencing psychosocial comorbidity (e.g. acne).[4] The establishment of psychodermatology as a discipline has led to the introduction of specialized clinics offering tailored psychological support interventions to patients. Where available, these services involve dermatology healthcare professionals working in collaboration with a clinical psychologist or psychiatrist, and will either refer patients to the onsite mental health practitioner or have them participate in consultations.[4]

The relevance of psychodermatology to clinical practice is shown by the significant psychosocial burden experienced by many people living with skin conditions.[5] For primary skin diseases propagated by inflammatory pathways, such as acne, heightened levels of perceived stress can result in adverse effects.[6] Acne is estimated to be the most common inflammatory condition treated worldwide,[7] and was one of the most prevalent skin diseases in a population-based study of 44 689 people across 27 European countries (5.4%).[8] Acne is characterized by lesions on the body, affecting the face, neck, back and chest/torso.[7] The condition presents with comedones, papules, pustules and nodules, and – in some cases – cysts, macular erythema, excoriation and changes in pigmentation, all of which can lead to scarring.[7]

The primary skin lesions caused by acne can cause pain and discomfort, but the impact of the condition extends beyond physical symptoms, and there can be psychological consequences. Having visibly different skin can be difficult, and there is wide-reaching societal pressure to conform to idealized images of 'beauty' advertised through the media.[9] Exposure to appearance ideals in outlets including magazines might contribute to a process of internalization, whereby a person's value and desire for social rewards are assigned to achieving a level of 'attractiveness'.[10] This could lead to a sense of 'failure' being experienced by people with skin conditions, if they cannot meet unrealistic standards of having a flawless appearance.[9,10]

Engagement with online content has also been associated with lower appearance satisfaction.[9,11] Most recently, Adkins *et al.*[12] investigated social media use in adults with acne, and found that, out of 650 people, there was a correlation between individuals who spent more time on photo activities on Facebook and higher levels of stigmatization, mediated by 'upward' appearance comparisons (to people deemed to be 'superior').[12] However, this was not consistent across all platforms (e.g. using Facebook only, or Instagram) and requires further investigation to understand how variations in the use of social media could influence the processes involved in making social comparisons.[12]

Acne frequently develops during adolescence and can disrupt how a young person views themselves in relation to their peers if they do not look the same or 'fit in'. There could be implications for the self-esteem of adolescents, who are transitioning through a critical period of change and

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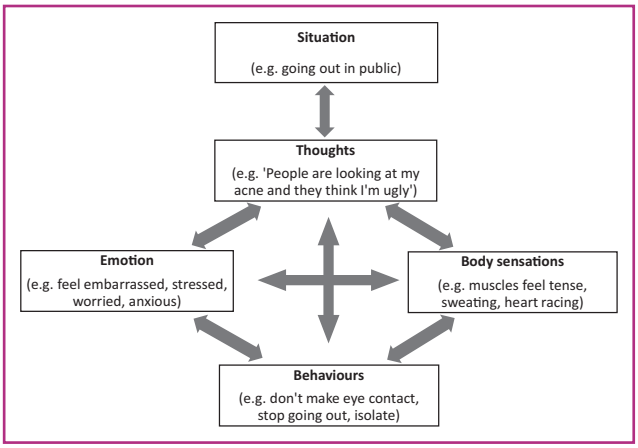

Figure 1 Example of a basic cognitive behavioural model.

might be vulnerable to negative appraisals.[13] Perhaps as a result of striving to meet unrealistic appearance standards, adolescents with acne can experience lowered self-attitude and self-worth, and an altered body image, when compared with those without acne.[14]

Although acne is common during adolescence, it can affect people of all ages. Ra *et al*. investigated the real-life experiences of people (aged <10 to >46 years) with acne via an online survey and found that, out of 2166 responses, acne affected all aspects of daily life; only 6.9% of people reported no negative impacts.[15] Sixty per cent of respondents had experienced a decrease in confidence, 57.1% had encountered verbal abuse from someone they know and 44.2% had been bullied as a result of their skin condition.[15] For these reasons, many people with acne may develop comorbid mood disturbances.[16]

A 2020 meta-analysis found an association between acne, depression and anxiety, and suggested that there could be an increased prevalence of these disorders among adults.[17] Despite this potentially resulting from the over-representation of adults in clinical samples, it highlights how age and experience may not determine how well a person copes with acne. Perhaps unsurprisingly, a retrospective cohort study by Vallerand *et al*. found that – over a 15-year follow-up period – the risk of developing major depressive disorder (MDD) was 18.5% for people with acne vs. 12.0% in the general population in the UK.[18] Further, the probability of developing MDD was increased within the first 5 years and highest within 1 year of diagnosis, illustrating the profound impact of disease onset on patients.[18] As well as depression, the prevalence of anxiety in patients with acne is estimated to be as high as 68.3% (Hospital Anxiety and Depression Scale), clearly illustrating the mental health burden of acne.[19]

In severe cases, people with acne may experience suicidal ideation. A meta-analysis of suicidality in children and adolescents with skin conditions found that the prevalence of suicide attempts ranged from 0.08% (psoriasis) to 21.9% (acne), and there was an increased odds ratio for children with acne or atopic dermatitis attempting suicide.[20] Further, Ra *et al*. found that 22.3% of 2166 respondents to an online survey had considered suicide as a result of their acne (of whom 32.7% were aged $\leq$ 18 years) and 76 had actively attempted suicide (of whom 31.6% were aged $\leq$ 18 years).[15] This appears to be similar in adults with acne, with a multicentre study of 213 adults with acne from 13 European countries reporting that 40.6% of their sample were worried about their appearance, 12.3% had experienced suicidal thoughts and 4% attributed their suicidality directly to their acne.[21]

When approaching treatment, a patient's psychological wellbeing should be assessed as early as possible. This is important; a European study investigating body dysmorphic disorder (BDD) found that, out of 8295 participants, symptoms of BDD were five times more prevalent in people with skin conditions vs. healthy controls, and people with a range of common dermatological diagnoses (including acne) had a sixfold increased chance of experiencing symptoms of BDD.[22] BDD is a psychiatric condition characterized by a person experiencing psychological distress arising from a preoccupation with minimal appearance-related flaws.[13] The association between skin conditions and BDD is complex, as acne is often immediately noticeable and people may be on the receiving end of negative comments.[15] As such, people with skin conditions often experience stigma,[5] and evidence suggests that stigmatization could be more of a predictor of BDD than depression, anxiety and suicidal ideation.[22] However, the clinical severity rating of acne by a healthcare professional does not necessarily correlate with the level of psychological distress.[13] For example, the highest chance of experiencing symptoms of BDD (11-fold increased chance) has been found to include people with conditions such as hyperhidrosis, which does not typically involve visible skin lesions.[22]

Potentially adding to the psychological burden of managing acne is how there can be frequent fluctuations in severity and appearance. Reflective of this, the 'butterfly effect' has been used to describe the fragile balance of small changes in the early stage of a condition that have a powerful influence on later states.[23,24] Although several factors have been suggested to have implications for skin lesions (e.g. omega-3 fatty acids, chocolate and milk),[25] the exact roles remain unclear and could be exacerbated by a lack of health education.[24,25] What is most apparent is how the dearth of definitive answers surrounding dietary effects, combined with frequently held misconceptions, can contribute to the cumulative stress experienced by people with acne.

Indeed, Murray and Rhodes[26] interviewed adults with acne and found that the stereotype of acne being a 'teenage problem' was common in social networks, often resulting in people feeling like they should have 'grown out of it'.[26] The absence of clear skin was interpreted by other people to be related to unhealthy lifestyle choices; these myths added to the stigma of living with acne in adulthood.[26] Similar findings were reported in a qualitative investigation by Barbieri *et al*.,[27] where adults felt separated from their peers as they did not know many people their own age with acne. As such, there was a sense of fatigue from the perpetuation of the unfulfilled wish for clear skin after progressing through adolescence.[27]

If repetitive negative thoughts about appearance persist, people with acne may develop their own coping strategies or even resort to substance misuse.[28] As suggested by the cognitive behavioural approach,[29] Figure 1 illustrates how these thoughts can influence behaviour. To decrease distress, a person might rely on 'safety behaviours', to minimize

exposure to perceived 'threats', such as covering their skin with clothes and dressing differently, or seeking reassurance from others.[13] These strategies can be successful short-term solutions for immediately reducing distress arising from situations deemed as threatening, but they can become damaging when used in the long term.[30] People may engage in behaviours such as concealment to hide their acne, which could result in a self-fulfilling prophecy,[31] where attempts to disguise skin lesions (e.g. with heavy makeup) inadvertently attract more attention.[13,31]

An example of negative thoughts influencing behaviour is how people with acne may become avoidant.[26,32] Based on Lethem's theory of exaggerated pain perception,[33] the fear-avoidance model of psychological difficulty following disfigurement explains how factors, including personality, life events and fear related to having a changed body (e.g. negative reactions from others), could determine a person's perception of an event, and whether they rely on confrontation or avoidance.[34,35] For example, the experiences of a person with acne and their level of fear (e.g. of receiving a negative comment) create the context for how they respond, and they may take steps to avoid certain situations, like socializing, in the future.[35,36] If this behaviour is sustained over time, it could lead to social withdrawal.[35] Indeed, qualitative interviews have revealed how people with acne often avoid seeing friends and family when their skin condition flares up, and they also miss out on work and social events.[32] Perhaps as a result of the potential for social isolation, there is a high prevalence of loneliness experienced by people with acne.[37]

Another misrepresentation surrounding the nature of acne is the view that patients may experience variations in levels of psychosocial impairment, based on gender and sexual identity. In reality, people who identify as transgender and individuals belonging to LGBTQ+ or sexual minority groups may be an underserved population in dermatology.[38] This is particularly relevant for people diagnosed with acne, as although the treatments for the condition are the same for all genders, there are additional considerations for some patients.[39] For example, testosterone therapy could potentially worsen disease, isotretinoin may alter postoperative wound healing or acne might even improve with oestrogen therapy.[39] For transgender people, acne could contribute to symptoms of gender dysphoria, and while not all patients will experience this, psychosocial distress could be heightened by a condition that has potential to alter both a person's appearance and identity.[40]

Regarding identity, there could be implications for people with skin of colour and their sense of ethnicity. A study comparing the mental health outcomes of acne in people with skin of colour and White populations found there were no significant differences in psychological outcomes between ethnicities, for distress, depression and mental health.[41] These findings suggest that the impact of acne can be equally profound for all people, irrespective of ethnicity or skin colour. However, Pathmarajah *et al.* carried out a systematic review of studies investigating the treatment of acne in people with skin of colour and concluded that although the condition shares the same pathogenesis irrespective of race or ethnicity, there can be different clinical presentations.[42] For example, darker skin types are associated with a heightened subclinical inflammatory response that can result in increased postinflammatory hyperpigmentation, as well as keloid scarring,[42] which can affect quality of life (QoL). Indeed, people with postinflammatory acne-related hyperpigmentation could be stigmatized vs. people with clear skin, as a result of negative beliefs about appearance existing in the general population.[43]

In terms of assessing QoL, a range of measures are available. Despite this, Chernyshov *et al.* found that the majority of items included in current tools are of little relevance to acne, and acne-specific health-related QoL measures do not include all of the relevant domains.[44] As a result, there is a need to standardize QoL measures,[45] and work is being undertaken to create new acne-specific health-related QoL tools.[44] For these reasons, the European Academy of Dermatology and Venereology Task Forces on QoL and Patient-Oriented Outcomes, and Acne, Rosacea and Hidradenitis Suppurativa issued a position statement recommending against the use of a single generic instrument of assessment in rosacea, except when comparing the impairment of QoL in people with rosacea to healthy controls and/or other diseases.[46]

When considering treatment options, there is long-standing controversy surrounding isotretinoin and its association with depressive symptoms and suicidality.[13] However, there is mixed research in terms of the level of risk. Paljarvi *et al.* compared mental health outcomes in database records of 30 000 people in the USA taking isotretinoin and 44 000 people taking antibiotics for acne, and found that taking isotretinoin could result in beneficial psychological effects.[47] Although current research suggests that clinical mood disturbances are a rare side-effect, some clinicians might be hesitant to prescribe the drug, especially if a patient has a pre-existing mental health condition.[13] Further, of a sample of 2166 people with acne, only 10.0% had tried isotretinoin, which could suggest that psychological distress is underestimated by some clinicians.[15]

In 2020, the Isotretinoin Expert Working Group was initiated by the Commission on Human Medicines to review the risks of psychiatric and sexual side-effects of isotretinoin, with the involvement of stakeholders and patients. The Report of the Commission on Human Medicines Isotretinoin Expert Working Group was published on 26 April 2023;[48] as a result of gaps in the existing evidence, the report could not determine whether the drug causes psychiatric symptoms. It concluded that the risks of isotretinoin are balanced by the benefits, and proposed additional safety recommendations for healthcare professionals, including providing more information on side-effects, assessing mental health, introducing stricter prescribing criteria for young people and working toward enhanced communication between clinicians; finally, the report highlights the need for further research.[48]

Although acne can contribute to a considerable psychological burden for adolescents and adults, many people do live well with skin conditions. Positive adjustment to visible difference can be enhanced by a range of protective factors to buffer against negative body image concerns and promote healthy coping.[49] To increase a positive body image and decrease negative self-evaluations, people with visible differences have relied on social support from family and friends,[50] developing a sense of acceptance of a visible difference as part of identity, and assigning worth to other aspects of the self and body (e.g. focusing on their

personality or physical functionality).[51,52] In some cases, people have reported experiencing positive outcomes such as personal growth from living with a condition altering their appearance, including becoming more resilient and developing a desire to help other people.[52] However, there could be an unmet need for additional support. The findings of Ra *et al*. indicated that 30.3% of respondents with acne felt they had been dismissed by a medical professional and 57.3% reported that they would benefit from having access to a specialized support line or group.[15]

Several psychotherapeutic techniques have been used to target the associated negative affect arising from living with a skin condition, such as acne.[53] For example, cognitive behavioural therapy uses strategies such as cognitive restructuring to address negative thought processes and has been found to improve symptoms of anxiety and depression and severity of acne excoriée.[54] Similarly, targeting stress that can contribute to disease worsening with stress-reduction techniques,[55] biofeedback and cognitive relaxation could reduce the severity of acne vulgaris.[56] Another area that has attracted attention involves the application of mindfulness and self-compassion with a range of skin conditions to reduce reactivity to negative thoughts.[36,57–60] As well as for patients themselves, mindful parenting has also shown promise as an effective intervention for carers of children with psoriasis and eczema, although further testing is required.[61] However, a 2022 systematic review of psychological therapies for skin conditions concluded that too few randomized controlled trials have focused specifically on conditions such as acne to determine the efficacy of interventions, pointing to the need for further research.[62]

By incorporating psychodermatology into treatment, there is an opportunity for early intervention to prevent appearance-related concerns pathologizing and interfering with daily functioning and – importantly – treatment adherence. A systematic review and thematic synthesis by Ip *et al*. revealed that several relevant themes for people with acne influence treatment, including the view that acne is a 'short-term' condition, frustration at other people minimizing the condition, the need to have perceived control of acne and its treatment, and the negative impact of receiving mixed advice.[63] Behavioural change interventions can be used to increase perceived control and disseminate credible health information, to support the long-term management of acne.[63]

Despite the substantial evidence base for the relationship between acne and mental health, access to specialized psychological support services is not equal across geographical locations,[64] and could mean that many patient needs are going unmet.[64–66] To address this, appropriate funding/commissioning must be allocated to setting up clinics and all healthcare professionals should be trained to approach the psychological burden of living with a skin condition as being equally important as the physical symptoms.[64–66] With consideration of the acne Priority Setting Partnership 'top 10' recommendations, increased psychological support could improve management strategies and optimize short and long-term treatment outcomes.[67]

As clinicians, we must ask ourselves, 'Is it really ever "just acne"?'

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Data availability

No new data were generated or analysed in support of this research.

Ethics statement

Not applicable.

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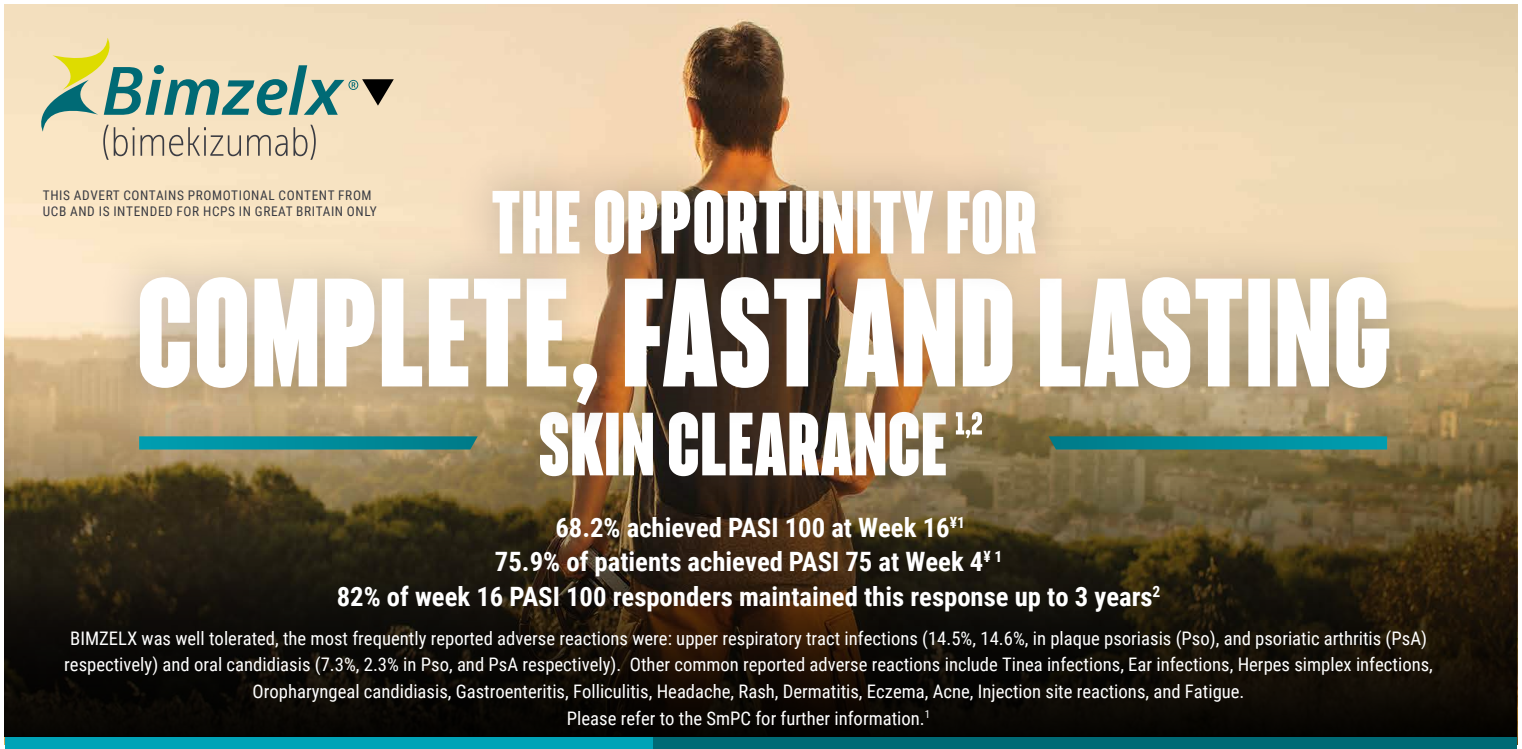
Bimzelx® ▼
(bimekizumab)

THIS ADVERT CONTAINS PROMOTIONAL CONTENT FROM UCB AND IS INTENDED FOR HCPS IN GREAT BRITAIN ONLY



THE OPPORTUNITY FOR COMPLETE, FAST AND LASTING SKIN CLEARANCE[1,2]

68.2% achieved PASI 100 at Week 16[¥1]
75.9% of patients achieved PASI 75 at Week 4[¥1]
82% of week 16 PASI 100 responders maintained this response up to 3 years[2]

BIMZELX was well tolerated, the most frequently reported adverse reactions were: upper respiratory tract infections (14.5%, 14.6%, in plaque psoriasis (Pso), and psoriatic arthritis (PsA) respectively) and oral candidiasis (7.3%, 2.3% in Pso, and PsA respectively). Other common reported adverse reactions include Tinea infections, Ear infections, Herpes simplex infections, Oropharyngeal candidiasis, Gastroenteritis, Folliculitis, Headache, Rash, Dermatitis, Eczema, Acne, Injection site reactions, and Fatigue.
Please refer to the SmPC for further information.[1]

Challenge expectations in plaque psoriasis[1,2]

Visit **Bimzelx.co.uk** to discover more.

This site contains promotional information on UCB products.

Stay connected with UCB by scanning the QR code and set your digital preferences.

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Footnotes: ¥co-primary endpoints PASI 90 and IGA 0/1 at Week 16

Pso - Plaque Psoriais; PsA - Psoriatic Athritis

BIMZELX® (Bimekizumab) is indicated for the treatment of moderate to severe plaque psoriasis in adults who are candidates for systemic therapy. Bimzelx, alone or in combination with methotrexate, is indicated for the treatment of active psoriatic arthritis in adults who have had an inadequate response or who have been intolerant to one or more disease-modifying antirheumatic drugs (DMARDs). Please refer to the SmPC for further information.[1]

PRESCRIBING INFORMATION FOR HCP'S IN GREAT BRITAIN

BIMZELX® ▼ (Bimekizumab) is indicated for the treatment of moderate to severe plaque psoriasis in adults who are candidates for systemic therapy; and for active psoriasis arthritis in adults who have had an inadequate response or who have been intolerant to one or more disease-modifying antirheumatic drugs (DMARDs), alone or in combination with methotrexate.[1] (Please consult the Summary of Product Characteristics (SmPC) before prescribing).

Active Ingredient: Bimekizumab – solution for injection in pre-filled syringe or pre-filled pen: *160 mg of bimekizumab in 1 mL of solution (160mg/mL).* **Indications:** Moderate to severe plaque psoriasis in adults who are candidates for systemic therapy. Alone or in combination with methotrexate, for active psoriatic arthritis in adults who have had an inadequate response or intolerant to one or more disease-modifying antirheumatic drugs (DMARDs). Adults with active non-radiographic axial spondyloarthritis with objective signs of inflammation as indicated by elevated C-reactive protein (CRP) and/or magnetic resonance imaging (MRI) who have responded inadequately or are intolerant to non-steroidal anti-inflammatory drugs (NSAIDs). Adults with active ankylosing spondylitis who have responded inadequately or are intolerant to conventional therapy. **Dosage and Administration:** Should be initiated and supervised by a physician experienced in the diagnosis and treatment of conditions for which Bimzelx is indicated. **Recommended dose:** Plaque Psoriasis: 320 mg (given as two subcutaneous injections of 160 mg each) at week 0, 4, 8, 12, 16 and every 8 weeks thereafter. Psoriatic arthritis: 160 mg (given as 1 subcutaneous injection of 160 mg) every 4 weeks. For psoriatic arthritis patients with coexistent moderate to severe plaque psoriasis, the recommended dose is the same as for plaque psoriasis. After 16 weeks, regular assessment of efficacy is recommended and if a sufficient clinical response in joints cannot be maintained, a switch to 160 mg every 4 weeks can be considered. Axial spondyloarthritis (nr-axSpA and AS): 160 mg (given as 1 subcutaneous injection) every 4 weeks. For patients with plaque psoriasis (including psoriatic arthritis with coexistent moderate to severe psoriasis) and a body weight ≥ 120 kg who did not achieve complete skin clearance at week 16, 320 mg every 4 weeks after week 16 may further improve treatment response. Consider discontinuing if no improvement by 16 weeks of treatment. Renal or hepatic impairment: No dose adjustment needed. Elderly: No dose adjustment needed. Administer by subcutaneous injection to thigh, abdomen or upper arm. Rotate injection sites and do not inject into psoriatic plaques or skin that is tender, bruised, erythematous or indurated. Do not shake pre-filled syringe or pre-filled pen. Patients may be trained to self-inject. **Contraindications:** Hypersensitivity to bimekizumab or any excipient; Clinically important active infections (e.g. active tuberculosis). **Warnings and Precautions:** Record name and batch number of administered product. *Infection:* Bimekizumab may increase the risk of infections e.g. upper respiratory tract infections, oral candidiasis. Caution when considering use in patients with a chronic infection or a history of recurrent infection. Must not be initiated if any clinically important active infection until infection resolves or is adequately treated. Advise patients to seek medical advice if signs or symptoms suggestive of an infection occur. If a patient develops an infection, the patient should be carefully monitored. If the infection becomes serious or is not responding to standard therapy do not administer bimekizumab until infection resolves. *TB:* Evaluate for TB infection prior to initiating bimekizumab – do not give if active TB. While on bimekizumab, monitor for signs and symptoms of active TB. Consider anti-TB therapy prior to bimekizumab initiation if past history of latent or active TB in whom adequate treatment course cannot be confirmed. *Inflammatory bowel disease:* Bimekizumab is not recommended in patients with inflammatory bowel disease. Cases of new or exacerbations of inflammatory bowel disease have been reported. If inflammatory bowel disease signs/symptoms develop or patient experiences exacerbation of pre-existing inflammatory bowel disease, discontinue bimekizumab and initiate medical management. *Hypersensitivity:* Serious hypersensitivity reactions including anaphylactic reactions have been observed with IL-17 inhibitors. If a serious hypersensitivity reaction occurs, discontinue immediately and treat. *Vaccinations:* Complete all age appropriate immunisations prior to bimekizumab initiation. Do not give live vaccines to bimekizumab patients. Patients may receive inactivated or non-live vaccinations. **Interactions:** A clinically relevant effect on CYP450 substrates with a narrow therapeutic index in which the dose is individually adjusted e.g. warfarin, cannot be excluded. Therapeutic monitoring should be considered. **Fertility, pregnancy and lactation:** Women of child-bearing potential should use an effective method of contraception during treatment and for at least 17 weeks after treatment. Avoid use of bimekizumab during pregnancy. It is unknown whether bimekizumab is excreted in human milk, hence a risk to the newborn/infant cannot be excluded. A decision must be made whether to discontinue breast-feeding or to discontinue/abstain from Bimzelx therapy. No data available on human fertility. **Driving and use of machines:** No or negligible influence on ability to drive and use machines. **Adverse Effects:** Refer to SmPC for full information. Very Common *(≥ 1/10):* upper respiratory tract infection; Common *(≥ 1/100 to < 1/10):* oral candidiasis, tinea infections, ear infections, herpes simplex infections, oropharyngeal candidiasis, gastroenteritis, folliculitis; headache, rash, dermatitis and eczema, acne, injection site reactions, fatigue; Uncommon *(≥ 1/1,000 to < 1/100):* mucosal and cutaneous candidiasis (including oesophageal candidiasis), conjunctivitis, neutropenia, inflammatory bowel disease. Storage precautions: Store in a refrigerator (2°C – 8°C), do not freeze. Keep in outer carton to protect from light. Bimzelx can be kept at up to 25°C for a single period of maximum 25 days with protection from light. Product should be discarded after this period or by the expiry date, whichever occurs first.

Legal Category: POM

Marketing Authorisation Numbers: PLGB 00039/0802 (Pre-filled Syringe), PLGB 00039/0803 (Pre-filled Pen).

UK NHS Costs: £2,443 per pack of 2 pre-filled syringes or pens of 160 mg each.

Marketing Authorisation Holder: UCB Pharma Ltd, 208 Bath Road, Slough, Berkshire, SL1 3WE, United Kingdom.

Further information is available from: UCB Pharma Ltd, 208 Bath Road, Slough, Berkshire, SL1 3WE. Tel: 0800 2793177 Email: ucbcares.uk@ucb.com

Date of Revision: August 2023 (GB-P-BK-AS-2300047)

Bimzelx is a registered trademark.

Adverse events should be reported. Reporting forms and information can be found at http://www.mhra.gov.uk/yellowcard. Adverse events should also be reported to UCB Pharma Ltd at ucbcares.uk@ucb.com or 0800 2793177.

References: 1. BIMZELX (bimekizumab) SmPC. Available at: https://www.medicines.org.uk/emc/product/12834/smpc. Accessed September 2023 **2.** Strober et al. [BE BRIGHT open label extension] Br J Dermatol. 2023. 188(6): 749-759.

GB-BK-2300081 Date of preparation: September 2023.

Inspired by patients. Driven by science.

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