Assessing disease severity and progression in hidradenitis suppurativa

Inspired by **patients.**
Driven by **science.**

This resource is aimed at healthcare professionals, produced and funded by UCB.
GB-DA-2400170 | Date of Preparation: April 2024

Objectives

- Understand the current staging systems used to assess HS disease severity
- Recognise the current outcome measures used in HS
- Highlight the importance of holistic disease outcome measures, including comorbidities and quality of life

HS, hidradenitis suppurativa.

For disease severity assessment, the Hurley staging system can be rapidly applied

HSS is recommended for routine use in the **clinical setting** and categorises patients with HS into **three groups** based on their **most severe area of involvement**:[2]

Hurley stage	Key features
Stage I	≥1 isolated abscess No sinus tracts or scar formation
Stage II	≥1 recurrent abscess with associated sinus tract / scar formation
Stage III	Diffuse or near-diffuse involvement of affected region Multiple abscesses and interconnected sinus tracts Extensive scarring

Refined Hurley Staging System

Sinus tracts?	No	≤ 2 regions AND < 5 abscesses/inflammatory nodules				**Stage IA** (mild)
		> 2 regions OR ≥ 5 abscesses/ inflammatory nodules	Predominantly fixed lesions			**Stage IB** (moderate)
			Predominantly migratory lesions			**Stage IC** (severe)
	Yes	Interconnected sinus tracts involving ≥ 1% body surface area?	No	Inflammation ?	No	**Stage IIA** (mild)
					Yes, ≤ 2 regions	**Stage IIB** (moderate)
					Yes, > 2 regions	**Stage IIC** (severe)
			Yes			**Stage III**

! HSS **does not provide** a dynamic assessment of the **overall disease burden** or **treatment effects**, and so is a **poor outcome measure** in the **clinical trial setting**[1,3]

HS, hidradenitis suppurativa; HSS, Hurley staging system. 1. Sabat et al. Nat Rev Dis Primers. 2020;6:18. 2. Horvath et al. Acta Derm Venereol. 2017;97:412–3. 3.Sartorius et al. Br J Dermatol. 2003;149:211–3.

HiSCR 50 is a widely accepted clinical trial endpoint by regulators

What?

- **HS lesions counted** before and after an intervention
- Focus on **abscess** and **inflammatory nodule** count[1]

Why?

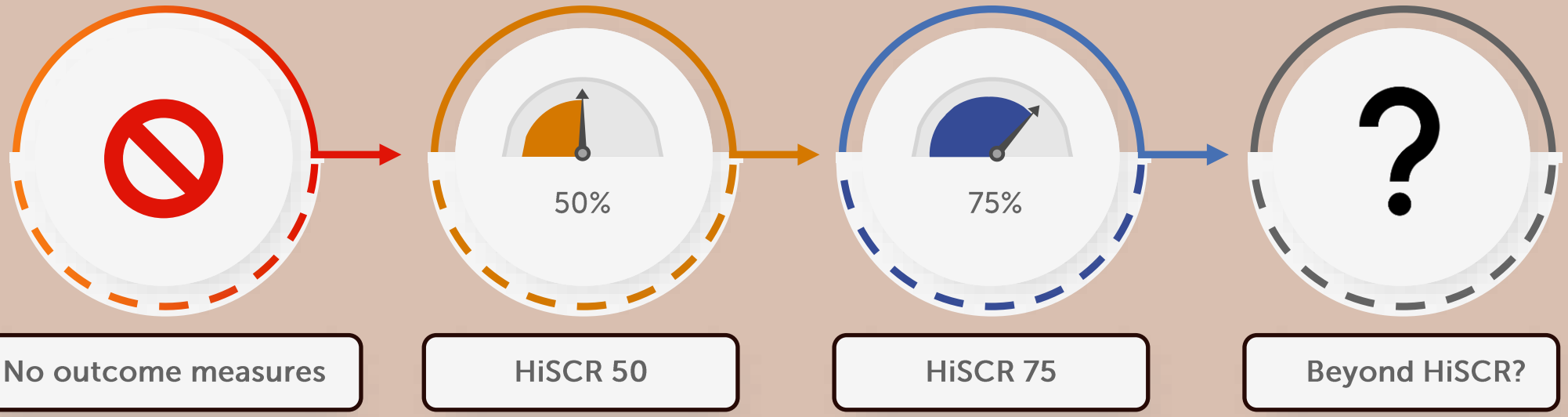
- The threshold of **50% reduction** in AN count is the defined level that is **clinically appropriate and meaningful to the patient** regarding improvement in quality of life and pain level[1,2]

What next?

- It is hoped that **emerging, efficacious treatments** will enable dermatologists to aim for HiSCR 75 (75% improvement) or higher thresholds[3]

AN, abscess and inflammatory nodule count; HiSCR, Hidradenitis Suppurativa Clinical Response; HS, hidradenitis suppurativa.
1. Kimball et al. JEADV. 2016;30:989. 2. Kimball et al. BJD. 2014;171:1434–42. 3. Kimball et al. Acta Derm Venereol. 2018;98:932–37.

Effective treatment options are limited in HS, and treatment goals are lower than those in conditions such as PsO[1-10]



1. Before a biologic was approved for HS, no validated outcome measures were available[1]
2. HiSCR 50 became commonly used in clinical trials in HS[2-7]
3. Emerging, efficacious treatments may eventually enable dermatologists to aim for 75% improvement (HiSCR 75) or greater improvement[11]
4. Further measures have been developed that capture different features of HS, such as tunnels[12]

Other dermatology conditions, such as PsO, use higher treatment targets (such as complete skin clearance)[8-10]

HiSCR, Hidradenitis Suppurativa Clinical Response; HS, hidradenitis suppurativa; PsO, psoriasis. 1. Kimball et al. Br J Dermatol. 2014;171:1434-42. 2. Clinicaltrials.gov identifier NCT03713632. 3. Clinicaltrials.gov identifier NCT03628924. 4. Clinicaltrials.gov identifier NCT03926169. 5. Clinicaltrials.gov identifier NCT04988308. 6. Clinicaltrials.gov identifier NCT04430855. 7. Clinicaltrials.gov identifier NCT03852472. 8. Reich et al. New Engl J Med. 2021;385:142–52. 9. Blauvelt A, et al. Br J Dermatol. 2020;182(6):1348–1358. 10. Gordon KB, et al. Lancet. 2018;392(10148):650–661. 11. Kearney et al. Clin Exp Dermatol. 2023; online ahead of print. 12. Zouboulis et al. Br J Dermatol. 2017;177:1401–09.

Do we need to go beyond HiSCR outcomes?

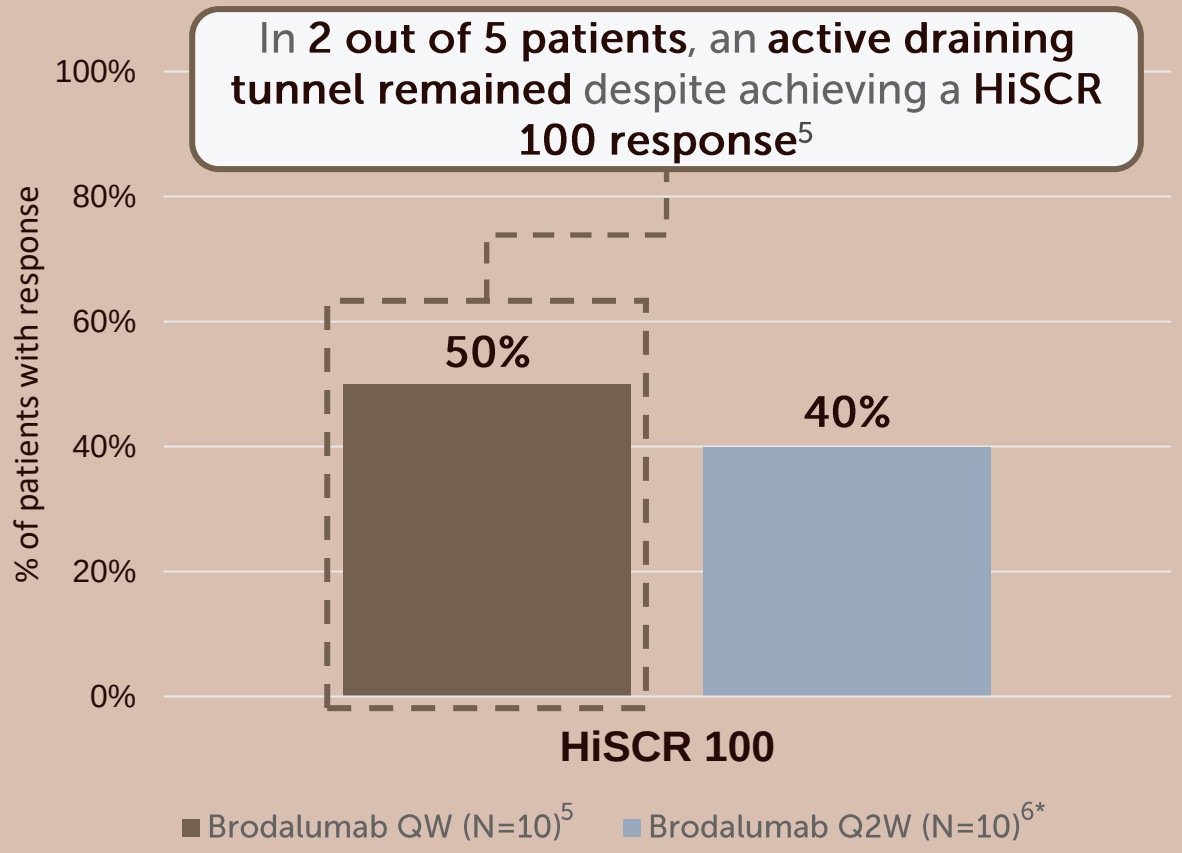
Limitations of HiSCR 50:

Limited scope[1]
- Does not take into account tunnels which may have a greater impact on QoL
- Does not take into account impact of pain on patients

High placebo response[2,3]
- Linked to overreliance on nodule count

Natural history[4]
- Variability in lesion count will have an impact on required sample sizes, costs, and time to completion for clinical trials

HiSCR 100 response rates at Week 12 in two open-label trials of brodalumab (N=10 per trial)[5,6]



The safety and efficacy of brodalumab has not been established in HS and it is not authorised for use by any health authority worldwide in this indication. *Doses at Weeks 0, 1 and 2, and Q2W thereafter; missing data were handled using non-responder imputation. HiSCR, Hidradenitis Suppurativa Clinical Response; HS, hidradenitis suppurativa; QW, once per week; Q2W, once every two weeks. 1. Kimball et al. J Eur Acad Dermatol Venereol. 2016;30:989–994. 2. Kimball et al. NEJM. 2016;375:422–34. 3. Frew et al. JAAD. 2020;82:1150–1157. 4. Frew et al. JAAD Int. 2020;1:208–221. 5. Frew et al. Br J Dermatol. 2021;184:350–2. 6. Frew et al. J Am Acad Dermatol. 2020;83:1341–8.

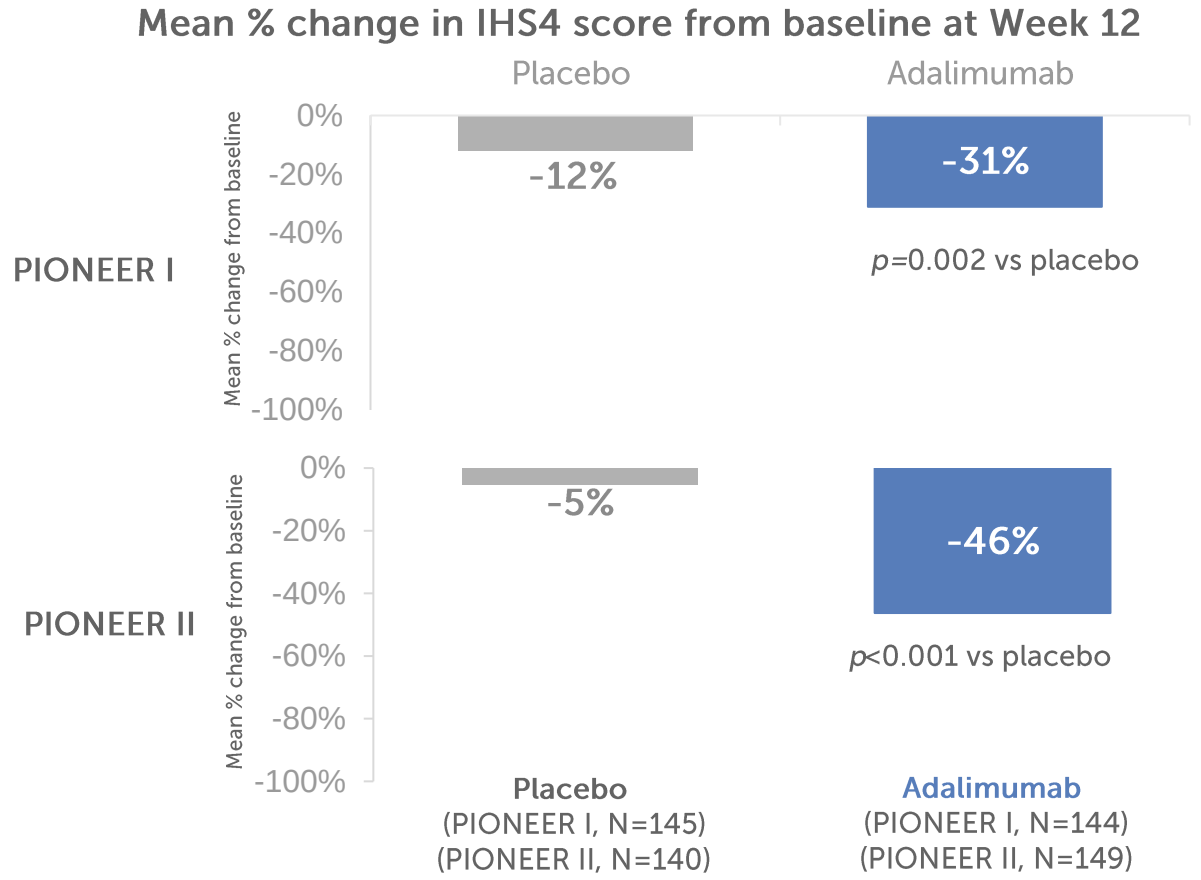
IHS4 is an outcome measure that considers draining tunnels

IHS4[1]

- Score calculated as: (1x # nodules) + (2x # abscesses) + (4x # draining tunnels)
- Mild (≤3), moderate (4–10) or severe (≥11)

Lesion type	Ranking
# Draining tunnels	1st
# Abscesses	2nd
# Nodules	3rd

IHS4 improvement with biologic treatment[1,2]



AN, abscess and inflammatory nodule count; HiSCR, Hidradenitis Suppurativa Clinical Response; HS, hidradenitis suppurativa; IHS4, International Hidradenitis Suppurativa Severity Score System. 1. Zouboulis et al. Br J Dermatol. 2017;177:1401–09. 2. Frew et al. J Am Acad Dermatol. 2020;82:1150–7.

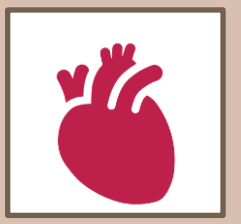
Comorbidities are also important to consider when assessing disease severity

Key examples of collaboration within the multidisciplinary approach in the management of comorbidities at baseline[1,2]

Surgeons
Surgical approach required for a number of patients

Gastroenterologists
Identification and management of IBD

Rheumatologists
Identification and management of arthritis



Cardiologists
Assessment of cardiovascular risk factors

- Emphasis must be placed on the **correct use of disease severity scores** and the **assessment of comorbidities** in general practice and in other specialties[1]
- **Patient-reported outcomes** (including DLQI and pain assessment) should also be considered during **severity assessment**[1]

DLQI, Dermatology Life Quality Index; HS, hidradenitis suppurativa; IBD, inflammatory bowel disease. 1. Gulliver et al. Rev Endocr Metab Disord. 2016;17:343–51. 2. Chiricozzi et al. J Eur Acad Dermatol Venereol. 2019;33:15–20.

Multiple domains should be measured in HS

The HiSTORIC collaboration (part of C3 - CHORD COUSIN Collaboration) has identified six core domains in HS[1,2]

Some available outcome measures that address these domains are shown here:*

*Not an exhaustive list of all outcomes measures developed for or in development for HS. DLQI, Dermatology Life Quality Index; HASI, Hidradenitis Suppurativa Area and Severity Index; HiSQoL, hidradenitis suppurativa quality of life; HODS, hidradenitis suppurativa odour and drainage scale; HS, hidradenitis suppurativa; HSIA, Hidradenitis Suppurativa Impact Assessment; HSQoL-24, hidradenitis suppurativa quality of life-24; HSSA, Hidradenitis Suppurativa Symptom Assessment; HSSDD, Hidradenitis Suppurativa Symptom Daily Diary; HSSQ, Hidradenitis Suppurativa Symptom Questionnaire; IGA, Investigator Global Assessment; NRS, numerical rating scale; PGA-SP, six-point Physician Global Assessment; PtGA, Patient Global Assessment; VAS, visual analogue scale. 1. van Straalen et al. Exp Dermatol. 2022;31:33–9. 2. Thorlacius et al. Br J Dermatol. 2018;179:642–50.

HSSDD is a recent tool that captures pain among other symptoms of HS

Hidradenitis Suppurativa Symptom Daily Diary (HSSDD) is a patient-reported outcome instrument developed specifically to measure severity of HS symptoms, including worst pain and average pain

How does HSSDD work?

5

Areas of HS disease symptoms addressed

Symptoms assessed over the previous 24 hours

0 → 10

On an NRS from 0 (no symptom) to 10 (symptom as bad as imaginable)

Symptoms assessed include:

Worst skin pain

Average skin pain

Worst itch

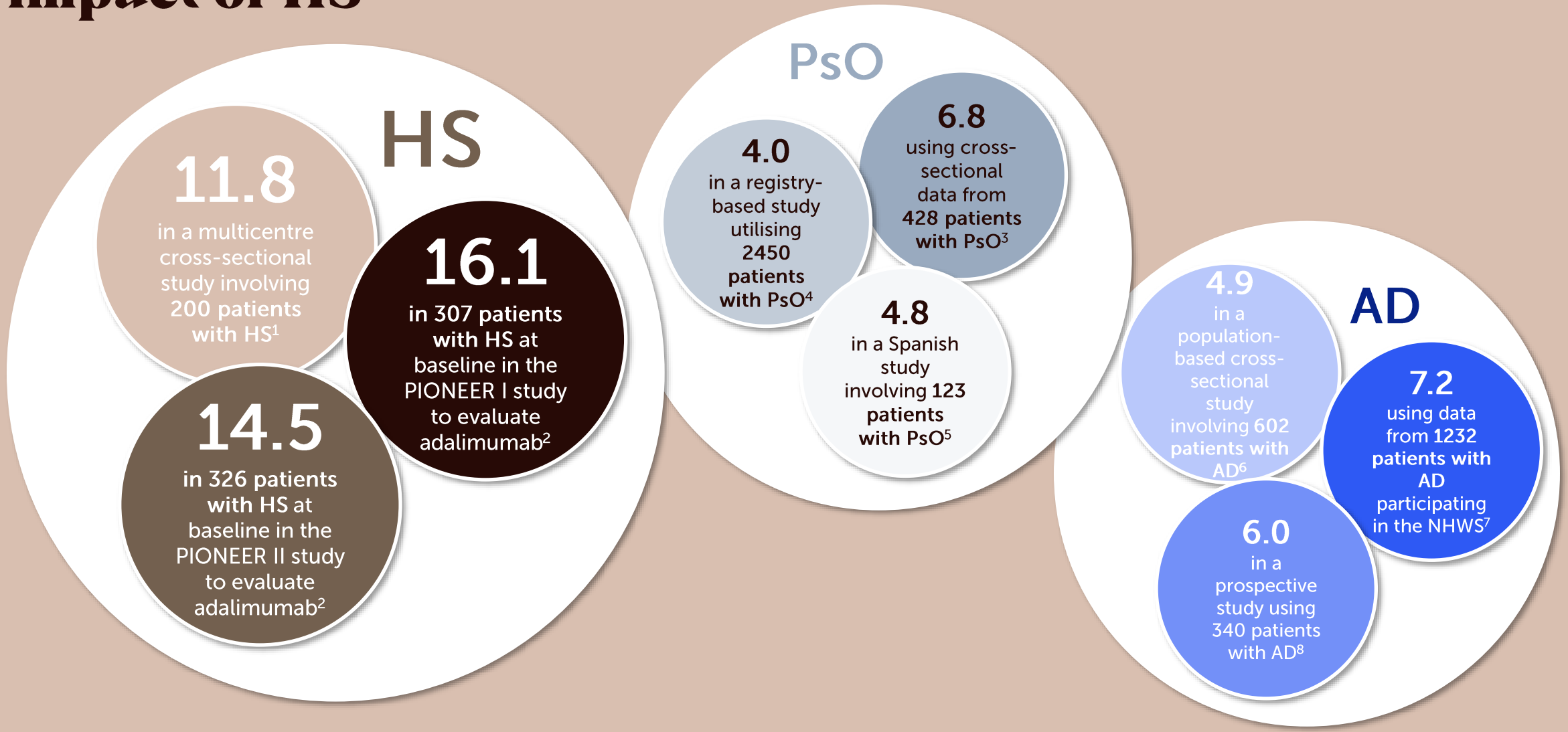
Smell/odour

Drainage/oozing

HS, hidradenitis suppurativa; HSSDD, Hidradenitis Suppurativa Symptom Daily Diary; NRS, numeric rating scale.

1. Ingram J R, et al. ISPOR EU. 2022. Poster. PCR36.

Measuring DLQI reveals the substantial quality of life impact of HS



AD, atopic dermatitis; HS; hidradenitis suppurativa; NHWS, National Health and Wellness Survey; PsO, psoriasis. 1. Gergely et al. J Eur Acad Dermatol Venereol. 2020;34:2584–92. 2. Kimball et al. N Engl J Med. 2016;375:422–34. 3. Rencz et al. Br J Dermatol 2020;182:1167–75. 4. Norlin et al. Br J Dermatol. 2012;166:797–802. 5. Badia et al. Br J Dermatol. 1999;141:698–702. 6. Silverberg et al. Ann Allergy Asthma Immunol. 2018;340–7. 7. Vilsbøll et al. Qual Life Res. 2020;29:2529–39. 8. Patel et al. Br J Dermatol. 2019;180:1083–9.

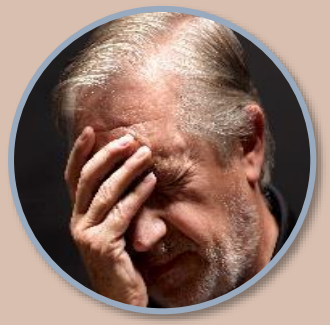
HiSQoL is another promising quality of life-related measure for patients with HS

HiSQoL comprises 17 items separated into 3 subscales:[1]

Symptoms

Pain
Itch
Drainage
Odour

Not included in **DLQI** assessment



Psychosocial

Down or depressed
Embarrassed
Anxious or nervous
Concentration
Sexual desire

Activities–adaptation

Walking
Exercising
Sleeping
Washing yourself
Getting dressed
What to wear
Ability to work/study
Difficulty in sexual activity

This measure has been accepted by the FDA on its Drug Development Tools Qualification Program[2]

DLQI, Dermatology Life Quality Index; HiSQoL, hidradenitis suppurativa quality of life; HS, hidradenitis suppurativa. 1. Kirby et al. Br J Dermatol. 2020;183:340–8. 2. FDA. HiSQoL. Available from: https://www.fda.gov/drugs/clinical-outcome-assessment-coa-qualification-program/ddt-coa-000111-hidradenitis-suppurativa-quality-life-hisqol (accessed June 2023).

Summary

- The current Hurly staging system for HS does not provide a dynamic assessment of overall disease burden or treatment effects
- Outcome measures used in clinical trials are also hindered by a number of factors, such as limited scope and high placebo responses
- Disease outcome measures are evolving to aim for higher treatment targets and to take into account more disease characteristics

HS; hidradenitis suppurativa.