Inpatient Management of Hidradenitis Suppurativa: A Delphi Consensus Study

McKenzie Needham, BS; Rita Pichardo, MD; Afsaneh Alavi, MD; Aileen Y. Chang, MD; Steven Daveluy, MD; Katherine L. DeNiro, MD; Anna Dewan, MD; Milad Eshaq, MD; Lindy Fox, MD; Jennifer Lin Hsiao, MD; Benjamin Harris Kaffenberger, MD; Joslyn S. Kirby, MD; Daniela Kroshinsky, MD; Alex G. Ortega-Loayza, MD; Jennifer Brescoll Manusco, MD; Robert G. Micheletti, MD; Arash Mostaghimi, MD; Caroline A. Nelson, MD; Helena B. Pasieka, MD; Martina L. Porter, MD; Barry I. Resnik, MD; Christopher J. Sayed, MD; Vivian Y. Shi, MD; Bridget E. Shields, MD; Lindsay C. Strowd, MD

PRACTICE **POINTS**

- Given the increase in hospital-based care for hidradenitis suppurativa (HS) and the lack of widespread inpatient access to dermatology and HS experts, consensus recommendations for management of HS in the acute hospital setting would be beneficial.
- Our Delphi study yielded 40 statements that reached consensus covering a range of patient care issues (eg, appropriate inpatient subspecialists [care team]), supportive care measures (wound care, pain control, genital care), disease-oriented treatment (medical management, surgical management), inpatient complications (infection control, nutrition), and successful transition to outpatient management (transitional care).
- These recommendations serve as an important resource for providers caring for inpatients with HS and represent a successful collaboration between inpatient dermatology and HS experts.

Inpatient hospitalization of individuals with hidradenitis suppurativa (HS) has increased. Inpatient services may not be familiar enough with this disease to understand how to manage severe HS and/or HS flares. It would be beneficial to the inpatient medical community to establish consensus recommendations on holistic inpatient care of patients with HS. A survey study was developed and distributed by Wake Forest University School of Medicine (Winston-Salem, North Carolina). A total of 26 dermatologists participated in the Delphi process, and the process was conducted in 2 rounds. Participants voted on proposal statements using a 9-point scale (1=very inappropriate; 9=very appropriate). Statements were developed using current published guidelines for management of HS and supportive care guidelines for other severe inpatient dermatologic diseases. A total of 50 statements were reviewed and voted on between the 2 rounds. Consensus was determined using the RAND/UCLA Appropriateness Method. Twenty-six dermatologists completed the first-round survey, and 24 completed the second-round survey. The 40 consensus recommendations generated through these surveys can serve as a resource for providers caring for inpatients with HS.

Hidradenitis suppurativa (HS) is a chronic inflammatory skin condition that affects approximately 0.1% of the US population.[1,2] Severe disease or HS flares can lead patients to seek care through the emergency

McKenzie Needham and Drs. Pichardo and Strowd are from the Wake Forest University School of Medicine, Winston-Salem, North Carolina. Drs. Pichardo and Strowd also are from the Department of Dermatology, Atrium Health Wake Forest Baptist, Winston-Salem. Dr. Alavi is from the Department of Dermatology, Mayo Clinic, Rochester, Minnesota. Drs. Chang and Fox are from the Department of Dermatology, School of Medicine, University of California San Francisco. Dr. Daveluy is from the School of Medicine, Wayne State University, Detroit, Michigan. Dr. DeNiro is from the Division of Dermatology, Department of Medicine, University of Washington, Seattle. Dr. Dewan is from Vanderbilt University Medical Center, Nashville, Tennessee. Drs. Eshaq and Manusco are from the Department of Dermatology, University of Michigan Medical School, Ann Arbor. Dr. Hsiao is from the Department of Dermatology, University of Southern California, Los Angeles. Dr. Kaffenberger is from the Department of Dermatology, Ohio State University, Columbus. Dr. Kirby is from the Department of Dermatology, Penn State Milton S. Hershey Medical Center, Pennsylvania, and Incyte Corporation, Wilmington, Delaware. Drs. Kroshinsky, Mostaghimi, and Porter are from the Department of Dermatology, Harvard Medical School, Boston, Massachusetts. Drs. Kroshinsky and Mostaghimi also are from the Department of Dermatology, Brigham & Women's Hospital, Boston. Dr. Porter also is from the Department of Dermatology, Beth Israel Deaconess Medical Center, Boston. Dr. Ortega-Loayza is from the Department of Dermatology, Oregon Health & Science University, Portland. Dr. Micheletti is from the Departments of Dermatology and Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia.
Dr. Nelson is from the Department of Dermatology, Yale School of Medicine, New Haven, Connecticut. Dr. Pasieka is from the Department of Dermatology and Medicine, Uniformed Services University, Bethesda, Maryland. Dr. Resnik is from the Dr. Phillip Frost Department of Dermatology and Cutaneous Surgery, University of Miami Miller School of Medicine, Florida. Dr. Sayed is from the Department of Dermatology, University of North Carolina at Chapel Hill. Dr. Shi is from the Department of Dermatology, University of Arkansas for Medical Sciences, Little Rock. Dr. Shields is from the Department of Dermatology, University of Wisconsin, Madison.
Several of the authors have financial relationships with companies that manufacture treatments for hidradenitis suppurativa. Due to their length, the disclosures are listed in their entirety in the Appendix online at www.mdedge.com/dermatology.
The eTables are available in the Appendix online at www.mdedge.com/dermatology.
Correspondence: Lindsay C. Strowd, MD (lchaney@wakehealth.edu).
Cutis. 2024 June;113(6):251-254, E1-E5. doi:10.12788/cutis.1027

department (ED), with some requiring inpatient admission.[3] Inpatient hospitalization of patients with HS has increased over the last 2 decades, and patients with HS utilize emergency and inpatient care more frequently than those with other dermatologic conditions.[4,5] Minority patients and those of lower socioeconomic status are more likely to present to the ED for HS management due to limited access to care and other existing comorbid conditions.[4] In a 2022 study of the Nationwide Readmissions Database, the authors looked at hospital readmission rates of patients with HS compared with those with heart failure—both patient populations with chronic debilitating conditions. Results indicated that the hospital readmission rates for patients with HS surpassed those of patients with heart failure for that year, highlighting the need for improved inpatient management of HS.[6]

Patients with HS present to the ED with severe pain, fever, wound care, or the need for surgical intervention. The ED and inpatient hospital setting are locations in which physicians may not be as familiar with the diagnosis or treatment of HS, specifically flares or severe disease.[7] The inpatient care setting provides access to certain resources that can be challenging to obtain in the outpatient clinical setting, such as social workers and pain specialists, but also can prove challenging in obtaining other resources for HS management, such as advanced medical therapies. Given the increase in hospital-based care for HS and lack of widespread inpatient access to dermatology and HS experts, consensus recommendations for management of HS in the acute hospital setting would be beneficial. In our study, we sought to generate a collection of expert consensus statements providers can refer to when managing patients with HS in the inpatient setting.

Methods

The study team at the Wake Forest University School of Medicine (Winston-Salem, North Carolina)(M.N., R.P., L.C.S.) developed an initial set of consensus statements based on current published HS treatment guidelines,[8,9] publications on management of inpatient HS,[3] published supportive care guidelines for Stevens-Johnson syndrome,[10] and personal clinical experience in managing inpatient HS, which resulted in 50 statements organized into the following categories: overall care, wound care, genital care, pain management, infection control, medical management, surgical management, nutrition, and transitional care guidelines. This study was approved by the Wake Forest University institutional review board (IRB00084257).

Participant Recruitment—Dermatologists were identified for participation in the study based on membership in the Society of Dermatology Hospitalists and the Hidradenitis Suppurativa Foundation or authorship of publications relevant to HS or inpatient dermatology. Dermatologists from larger academic institutions with HS specialty clinics and inpatient dermatology services also were identified. Participants were invited via email and could suggest other experts for inclusion. A total of 31 dermatologists were invited to participate in the study, with 26 agreeing to participate. All participating dermatologists were practicing in the United States.

Delphi Study—In the first round of the Delphi study, the participants were sent an online survey via REDCap in which they were asked to rank the appropriateness of each of the proposed 50 guideline statements on a scale of 1 (very inappropriate) to 9 (very appropriate). Participants also were able to provide commentary and feedback on each of the statements. Survey results were analyzed using the RAND/UCLA Appropriateness Method.[11] For each statement, the median rating for appropriateness, interpercentile range (IPR), IPR adjusted for symmetry, and disagreement index (DI) were calculated (DI=IPR/IPR adjusted for symmetry). The 30th and 70th percentiles were used in the DI calculation as the upper and lower limits, respectively. A median rating for appropriateness of 1.0 to 3.9 was considered "inappropriate," 4.0 to 6.9 was considered "uncertain appropriateness," and 7.0 to 9.0 was "appropriate." A DI value greater than or equal to 1 indicated a lack of consensus regarding the appropriateness of the statement. Following each round, participants received a copy of their responses along with the group median rank of each statement.

Statements that did not reach consensus in the first Delphi round were revised based on feedback received by the participants, and a second survey with 14 statements was sent via REDCap 2 weeks later. The RAND/UCLA Appropriateness Method also was applied to this second Delphi round. After the second survey, participants received a copy of anonymized comments regarding the consensus statements and were allowed to provide additional final commentary to be included in the discussion of these recommendations.

Results

Twenty-six dermatologists completed the first-round survey, and 24 participants completed the second-round survey. All participants self-identified as having expertise in either HS (n=22 [85%]) or inpatient dermatology (n=17 [65%]), and 13 (50%) participants self-identified as experts in both HS and inpatient dermatology. All participants, except 1, were affiliated with an academic health system with inpatient dermatology services. The average length of time in practice as a dermatologist was 10 years (median, 9 years [range, 3–27 years]).

Of the 50 initial proposed consensus statements, 26 (52%) achieved consensus after the first round; 21 statements revealed DI calculations that did not achieve consensus. Two statements achieved consensus but received median ratings for appropriateness, indicating uncertain appropriateness; because of this, 1 statement was removed and 1 was revised based on participant feedback, resulting in 13 revised statements (eTable 1). Controversial topics in the consensus process included obtaining wound cultures and meaningful culture data interpretation, use of specific

biologic medications in the inpatient setting, and use of intravenous ertapenem. Participant responses to these topics are discussed in detail below. Of these second-round statements, all achieved consensus. The final set of consensus statements can be found in eTable 2.

Comment

Our Delphi consensus study combined the expertise of both dermatologists who care for patients with HS and those with inpatient dermatology experience to produce a set of recommendations for the management of HS in the hospital care setting. A strength of this study is inclusion of many national leaders in both HS and inpatient dermatology, with some participants having developed the previously published HS treatment guidelines and others having participated in inpatient dermatology Delphi studies.[8-10] The expertise is further strengthened by the geographically diverse institutional representation within the United States.

The final consensus recommendations included 40 statements covering a range of patient care issues, including use of appropriate inpatient subspecialists (care team), supportive care measures (wound care, pain control, genital care), disease-oriented treatment (medical management, surgical management), inpatient complications (infection control, nutrition), and successful transition back to outpatient management (transitional care). These recommendations are meant to serve as a resource for providers to consider when taking care of inpatient HS flares, recognizing that the complexity and individual circumstances of each patient are unique.

Delphi Consensus Recommendations Compared to Prior Guidelines—Several recommendations in the current study align with the previously published North American clinical management guidelines for HS.[8,9] Our recommendations agree with prior guidelines on the importance of disease staging and pain assessment using validated assessment tools as well as screening for HS comorbidities. There also is agreement in the potential benefit of involving pain specialists in the development of a comprehensive pain management plan. The inpatient care setting provides a unique opportunity to engage multiple specialists and collaborate on patient care in a timely manner. Our recommendations regarding surgical care also align with established guidelines in recommending incision and drainage as an acute bedside procedure best utilized for symptom relief in inflamed abscesses and relegating most other surgical management to the outpatient setting. Wound care recommendations also are similar, with our expert participants agreeing on individualizing dressing choices based on wound characteristics. A benefit of inpatient wound care is access to skilled nursing for dressing changes and potentially improved access to more sophisticated dressing materials. Our recommendations differ from the prior guidelines in our focus on severe HS, HS flares, and HS complications, which constitute the majority of inpatient disease management. We provide additional guidance on management of secondary infections, perianal fistulous disease, and importantly transitional care to optimize discharge planning.

Differing Opinions in Our Analysis—Despite the success of our Delphi consensus process, there were some differing opinions regarding certain aspects of inpatient HS management, which is to be expected given the lack of strong evidence-based research to support some of the recommended practices. There were differing opinions on the utility of wound culture data, with some participants feeling culture data could help with antibiotic susceptibility and resistance patterns, while others felt wound cultures represent bacterial colonization or biofilm formation.

Initial consensus statements in the first Delphi round were created for individual biologic medications but did not achieve consensus, and feedback on the use of biologics in the inpatient environment was mixed, largely due to logistic and insurance issues. Many participants felt biologic medication cost, difficulty obtaining inpatient reimbursement, health care resource utilization, and availability of biologics in different hospital systems prevented recommending the use of specific biologics during hospitalization. The one exception was in the case of a hospitalized patient who was already receiving infliximab for HS: there was consensus on ensuring the patient dosing was maximized, if appropriate, to 10 mg/kg.[12] Ertapenem use also was controversial, with some participants using it as a bridge therapy to either outpatient biologic use or surgery, while others felt it was onerous and difficult to establish reliable access to secure intravenous administration and regular dosing once the patient left the inpatient setting.[13] Others said they have experienced objections from infectious disease colleagues on the use of intravenous antibiotics, citing antibiotic stewardship concerns.

Patient Care in the Inpatient Setting—Prior literature suggests patients admitted as inpatients for HS tend to be of lower socioeconomic status and are admitted to larger urban teaching hospitals.[14,15] Patients with lower socioeconomic status have increased difficulty accessing health care resources; therefore, inpatient admission serves as an opportunity to provide a holistic HS assessment and coordinate resources for chronic outpatient management.

Study Limitations—This Delphi consensus study has some limitations. The existing literature on inpatient management of HS is limited, challenging our ability to assess the extent to which these published recommendations are already being implemented. Additionally, the study included HS and inpatient dermatology experts from the United States, which means the recommendations may not be generalizable to other countries. Most participants practiced dermatology at large tertiary care academic medical centers, which may limit the ability to implement recommendations in all US inpatient care settings such as small community-based hospitals; however, many of the supportive care guidelines such as pain

control, wound care, nutritional support, and social work should be achievable in most inpatient care settings.

Conclusion

Given the increase in inpatient and ED health care utilization for HS, there is an urgent need for expert consensus recommendations on inpatient management of this unique patient population, which requires complex multidisciplinary care. Our recommendations are a resource for providers to utilize and potentially improve the standard of care we provide these patients.

Acknowledgment—We thank the Wake Forest University Clinical and Translational Science Institute (Winston-Salem, North Carolina) for providing statistical help.

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APPENDIX

Author financial disclosures:

McKenzie Needham as well as Drs. Chang, DeNiro, Dewan, Eshaq, Kroshinsky, Manusco, and Pasieka report no conflicts of interest.

Dr. Pichardo has been an advisor for Novartis and UCB.

Dr. Alavi is a consultant for Almirall, Boehringer-Ingelheim, InflaRx, LEO Pharma, Novartis, and UCB; is on the board of editors for the Hidradenitis Suppurativa Foundation; has received a research grant from the National Institutes of Health; and has equity in Medical Dermatology.

Dr. Daveluy is a speaker for AbbVie, Novartis, and UCB, and has received research grants from AbbVie, Novartis, Pfizer, Regeneron, Sanofi, and UCB.

Dr. Fox is a co-founder of and holds equity in DermLab.

Dr. Hsiao is on the Board of Directors for the Hidradenitis Suppurativa Foundation; is a speaker for AbbVie, Novartis, Regeneron, Sanofi, and UCB; has received research grants from Amgen, Boehringer-Ingelheim, and Incyte; and is an advisor for AbbVie, Aclaris, Boehringer-Ingelheim, Incyte, Novartis, and UCB.

Dr. Kaffenberger is a consultant for ADC Therapeutics, Biogen, and Eli Lilly and Company; a speaker for Novartis and Novocure; and has received research grants from Biogen, InflaRx, Merck, and Target-Derm.

Dr. Kirby is an employee of Incyte.

Dr. Ortega-Loayza is an advisory board member and/or speaker for Biotech, Bristol Myers Squibb, Boehringer-Ingelheim, and Sanofi, and has received research grants and/or consulting fees from AbbVie, Boehringer-Ingelheim, Castle Biosciences, Clarivate, Corvus Pharmaceuticals, Eli Lilly and Company, Genentech, Guidepoint, Incyte, InflaRx, Janssen, National Institutes of Health, Otsuka, Pfizer, Sitala Bio Ltd, and TFS Health Science.

Dr. Micheletti is a consultant for Vertex and has received research grants from Acelyrin, Amgen, Boehringer-Ingelheim, Cabaletta Bio, and InflaRx.

Dr. Mostaghimi has received income from AbbVie, ASLAN, Boehringer-Ingelheim, Dermatheory, Digital Diagnostics, Eli Lilly and Company, Equillium, Figure 1 Inc, Hims & Hers Health, Inc, Legacy Healthcare, Olapex, Pfizer, and Sun Pharmaceuticals.

Dr. Nelson is an advisory board member for and has received research grants from Boehringer-Ingelheim.

Dr. Porter is a consultant for or has received research grants from AbbVie, Alumis, AnaptysBio, Avalo, Bayer, Bristol Myers Squibb, Eli Lilly and Company, Incyte, Janssen, Moonlake Therapeutics, Novartis, Oasis Pharmaceuticals, Pfizer, Prometheus Laboratories, Regeneron, Sanofi, Sonoma Biotherapeutics, Trifecta Clinical, and UCB.

Dr. Resnik serves or served as a speaker for AbbVie and Novartis.

Dr. Sayed serves or served as an advisor, consultant, director, employee, investigator, officer, partner, speaker, or trustee for AbbVie, AstraZeneca, Chemocentryx, Incyte, InflaRx, Logical Images, Novartis, Sandoz, Sanofi, and UCB.

Dr. Shi is on the Board of Directors for the Hidradenitis Suppurativa Foundation and is an advisor for the National Eczema Association; is a consultant, investigator, and/or speaker for AbbVie, Almirall, Altus Lab/cQuell, Alumis, Aristea Therapeutics, ASLAN, Bain Capital, Boehringer-Ingelheim, Burt's Bees, Castle Biosciences, Dermira, Eli Lilly and Company, Galderma, Genentech, GpSkin, Incyte, Kiniksa, LEO Pharma, Menlo Therapeutics, MYOR, Novartis, Pfizer, Polyfins Technology, Regeneron, Sanofi-Genzyme, Skin Actives Scientific, Sun Pharmaceuticals, Target Pharma Solutions, and UCB; has received research grants from Pfizer and Skin Actives Scientific; and is a stock shareholder in Learn Health.

Dr. Shields is on the advisory board for Arcutis Therapeutics and has received income from UpToDate, Inc.

Dr. Strowd is a speaker for and/or has received research grants or income from Galderma, Pfizer, Regeneron, and Sanofi.

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eTABLE 1. Delphi Consensus Statements Not Achieving Consensus After the First-Round Survey

Consensus category	Median rating for appropriateness[a]	DI[b]	Revised statement in second-round survey
Wound care			
Dermatologists should direct wound care of hospitalized HS patients.	6	5.26315789	Either dermatology or inpatient wound care teams can direct wound care for hospitalized HS patients depending on hospital-specific availability and expertise.
Hospital-based wound care teams or wound nurses should direct wound care for lesions in hospitalized HS patients.	6	1.2244898	
After cleansing wounds, apply a thin layer of silver sulfadiazine cream, manuka honey, or another antimicrobial ointment to open sores and ulcers.	5	2.35294118	For skin surfaces with active HS disease, areas should be cleaned with sterile water, normal saline, or dilute chlorhexidine 0.05% solution with dressing changes.
Select nonadherent, absorbent, antimicrobial primary dressings for optimal drainage control and antibacterial properties.	7	30	Local wound dressings should be chosen based on the individual wound characteristics; absorbent dressings should be used in exudative wounds and moist dressings in nonexudative erosive wounds.
Genital care			
Urogenital examination should ideally be performed by a gynecologist, urologist, or urogynecology specialist.	6	2.35294118	Gynecology and/or urology should be consulted during hospitalization only if procedural interventions are planned by these services or there is another unique need.
Daily examination is required during the acute hospitalization.	6.5	30	
During the admission, the vulvar/urogenital skin/mucosa should be protected with an ointment gauze to help reduce pain and facilitate healing.	7	26	Statement removed
Consider menstrual suppression during hospitalization.[c]	5	0.71942446	Statement removed
Offer the patient the option of menstrual suppression if there is significant vulvar involvement to reduce discomfort.	7	−3.6521739	Statement removed
Pain management			
Pain should be evaluated every 4 h.	6	−12.727273	Pain should be evaluated at least twice daily.
Infection control			
Bacterial wound cultures should be obtained from actively draining HS lesions to guide antimicrobial therapy.[c]	5	0.96774194	Bacterial wound cultures of HS lesions are not routinely recommended unless there are signs of surrounding cellulitis or acute infection.
CBC should be obtained on admission and daily during hospitalization to monitor WBC.	7	−5.4545455	WBC is not considered a reliable measure of true bacteremia or active infection in this patient population and should be considered in conjunction with other signs and symptoms of infection.
Consider prophylactic coverage with oral fluconazole for yeast co-infection.	5.5	2.35294118	Statement removed

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eTABLE 1. (continued)

Consensus category	Median rating for appropriateness[a]	DI[b]	Revised statement in second-round survey
HS medical management			
If patient is Hurley stage 2 or 3 and no sign of systemic infection, start therapy with adalimumab.	7	−3.0769231	If patient is Hurley stage 2 or 3 and is biologic naïve, consider expediting approval and initiation of biologic therapy based on current published treatment guidelines.
If patient is Hurley stage 2 or 3 and no sign of systemic infection, start therapy with infliximab.	7	−3.0769231	
If patient has failed TNF-α therapy, consider escalating to off-label IL-17 receptor antagonist therapy.	7	−3.0769231	Statement removed
If patient has failed TNF-α therapy, consider escalating to off-label IL-12/IL-23 receptor antagonist therapy.	7	−3.0769231	Statement removed
If patient has failed TNF-α therapy, consider escalating to off-label IL-1 receptor antagonist therapy.	6	2.35294118	Statement removed
Surgical management			
Inpatient surgical management should be considered when the patient is not actively infected/bacteremic.	8	−3.0769231	Surgical procedures such as wide local excision of noninflamed HS lesions should be performed in the outpatient setting over the acute inpatient setting.
Bedside I&D should be performed on actively inflamed painful cysts.	6	11.2	Bedside I&D should be considered on actively inflamed painful abscesses.
Plastic surgery should be consulted for suspected fistulous disease.	7	30	Plastic surgery, general surgery, or other surgical services should be consulted for evaluation of chronically inflamed tunneling disease; if there is concern for perianal fistulas, consult colorectal surgery for evaluation.
Nutrition			
Obtain serum prealbumin as marker of global nutritional status.	6	1.7721519	Statement removed
Transitional care			
Consult social work to determine if patient has coverage for bariatric/weight management resources and refer if coverage exists.	7	−1.4084507	Statement removed

Abbreviations: CBC, complete blood cell count; DI, disagreement index; HS, hidradenitis suppurativa; I&D, incision and drainage; TNF, tumor necrosis factor; WBC, white blood cell count.

[a]Statements ranked on a scale of 1 (very inappropriate) to 9 (very appropriate).

[b]DI≥1 indicates a lack of consensus regarding the appropriateness.

[c]This statement received a rating that indicated uncertain appropriateness despite achieving consensus.

eTABLE 2. Delphi Consensus Guidelines for Management of Inpatient HS

Consensus category	Median rating for appropriateness[a]	DI[b]
Overall care		
Management of inpatients with severe HS/HS flares require a multidisciplinary team that may include dermatology, gynecology, urology, plastic surgery, internal medicine, pain management, nutrition, nursing, psychology/psychiatry, wound care, social work, and other fields.	9	−0.3448276
Dermatologists are experts in the disease state of HS and should directly participate in the management of such patients.	9	0
Chronic conditions and comorbidities play a significant role in the morbidity of patients with HS and the need for specialized multidisciplinary care, and hospital transfers should take into account these factors.	9	−0.3448276
Patients with severe HS should be screened for symptoms of IBD; if signs or symptoms of IBD are present, gastroenterology should be consulted.	8.5	−0.5940594
Patients with severe HS should be screened for signs and symptoms of autoinflammatory disorders; if symptoms are present, rheumatology should be consulted.	7	−0.8450704
Wound care		
Determine all affected anatomic locations and use Hurley staging system to document disease severity.	8	−0.9302326
Either dermatology or inpatient wound care teams can direct wound care for hospitalized HS patients depending on hospital-specific availability and expertise.[c]	8	−0.9302326
For skin surfaces with active HS disease, areas should be cleaned with sterile water, normal saline, or dilute chlorhexidine 0.05% solution with dressing changes.[c]	7.5	−0.7142857
Local wound dressings should be chosen based on the individual wound characteristics; absorbent dressings should be used for exudative wounds and moist dressings for nonexudative erosive wounds.[c]	9	−0.3448276
Genital care		
Gynecology and/or urology should be consulted during hospitalization only if procedural interventions are planned by these services or there is another unique need.[c]	8	−0.7142857
Pain management		
Evaluation and treatment of pain is a priority in hospitalized patients.	9	0
Pain should be evaluated at least twice daily.[c]	8	−0.9302326
A validated pain tool should be used to assess pain in all patients at least once daily.	8.5	−0.3448276
Consult pain management to provide expert recommendation in both acute and chronic pain control.	8	−0.9302326
Procedures such as dressing changes and bathing may require additional pain control.	9	−0.3448276
Topical analgesics such as topical lidocaine should be considered in conjunction with systemic pain medications.	8	−0.9302326
Infection control		
Hand hygiene and other infection control measures should be utilized when changing dressings.	9	0
WBC count is not considered a reliable measure of true bacteremia or active infection in this patient population and should be considered in conjunction with other signs and symptoms of infection.[c]	8	−0.3448276
Patients should be screened for signs of bloodstream infection such as fever, leukocytosis, and/or hypotension; if present, 2 peripheral blood cultures should be obtained on admission.	8	−0.9302326

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eTABLE 2. (continued)

Consensus category	Median rating for appropriateness[a]	DI[b]
Infection control		
Bacterial wound cultures of HS lesions are not routinely recommended unless there are signs of surrounding cellulitis or acute infection.[c]	8.5	−0.3448276
Secondary cutaneous infection may be accompanied by an increase in skin pain.	8	−0.9302326
Secondary cutaneous infection may be accompanied by an increase in skin drainage.	8	−0.9302326
For severe HS flares, consider 24–48 h of IV antibiotics followed by de-escalation to oral antibiotics pending clinical improvement in disease.	8	−0.8450704
Medical management		
If the patient is already on infliximab therapy, consider increasing the dose up to a maximum of 10 mg/kg.	8	−0.9302326
If patient is Hurley stage 2 or 3 and is biologic naïve, consider expediting approval and initiation of biologic therapy based on current published treatment guidelines.[c]	8	−0.3448276
Consider initiating IV ertapenem therapy inpatient and continue for 6 wk as a bridge to outpatient HS therapies.[c]	7	−0.8571429
For severe flares, consider pulse-dose steroids with IV methylprednisolone 1 mg/kg for 3–5 d as bridge to other therapies.[c]	8	−0.9302326
Surgical management		
Surgical procedures such as wide local excision of noninflamed HS lesions should be performed in the outpatient setting over the acute inpatient setting.[c]	8	−0.9302326
If there is concern for perianal fistulas, consult colorectal surgery for evaluation.[c]	8.5	−0.3448276
Bedside I&D should be considered on actively inflamed painful abscesses.[c]	8	−0.9302326
Plastic surgery, general surgery, or other surgical services should be consulted for evaluation of chronically inflamed tunneling disease.[c]	8	−0.8301887
Nutrition		
Maintain close glycemic control.	8.5	−0.3448276
Obtain HbA_{1C} level to screen for diabetes if patient has not been tested in the past 6 mo.	8	−0.9302326
Consult a hospital nutritionist to assess patient's dietary intake and opportunity to improve nutritional status.	8	−0.9302326
Transitional care		
Consult social work to procure home health services for wound care after discharge.	8.5	−0.9302326
Consult social work to screen for barriers to outpatient follow up such as transportation resources.	8.5	−0.3448276
Coordinate multiple outpatient appointments to streamline care for patients after discharge.	9	−0.5940594
Provide outpatient dermatology follow up within 2 wk of discharge to avoid hospital re-admission.	9	−0.3448276
Patient needs postdischarge appointment with their PCP within 2 wk; if patient does not have a PCP, they should be set up with one prior to discharge.	8	−0.9302326
Verify insurance status and help enroll in government insurance if needed.	9	−0.3448276

Abbreviations: DI, disagreement index; HbA_{1C}, hemoglobin A_{1C}; HS, hidradenitis suppurativa; IBD, inflammatory bowel disease; I&D, incision and drainage; IV, intravenous; PCP, primary care physician; WBC, white blood cell count.
[a]Statements ranked on a scale of 1 (very inappropriate) to 9 (very appropriate).
[b]DI≥1 indicates a lack of consensus regarding the appropriateness.
[c]Statement was from the second-round survey.