

Expert Consensus Statements on the Management of Sepsis in the Resource-limited Settings

Round One Survey Report

The Round one survey was created on a ‘Google Forms’ platform. The survey went live on May 18, 2023, with a window of 14 days for responses until May 31, 2023, at 5 PM (GMT). This survey was sent to 42 distinguished experts who accepted our invitation. 41 experts (97.6%) completed the survey in the stipulated time frame. There were 29 questions in the survey, with 22 ordinal Likert scale-based qualitative statements and 7 multiple-choice questions based on qualitative options. A detailed report of the results of each question with the comments is presented below for your perusal. Minor edits have been made in the comments received to maintain the anonymity of the Experts. The steering committee has created a Round TWO questionnaire based on this report.

The steering committee, following extensive discussion, has made the following changes in the questionnaire, based on the responses and comments in round one:

Consensus	$\geq 70\%$ in favor of agree/disagree, or $\geq 80\%$ in favor of single option	Analyze for stability
Stability	Chi-square for analysis, p-value < 0.05 is significant (not applicable for round-1)	To analyze and aim for stable consensus or dissensus. If stable, the question is dropped from the next round.

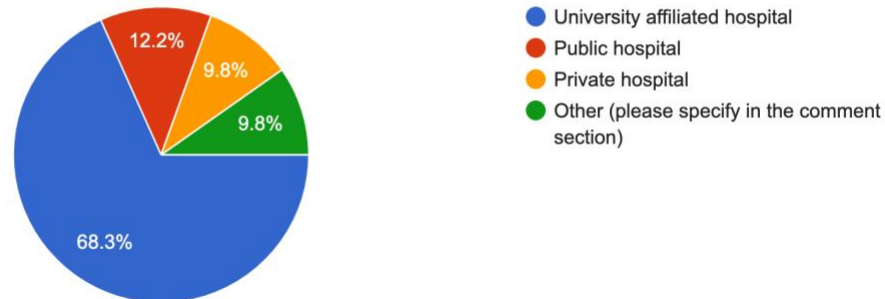
Consensus Matrix

Round	1					
Sections	5					
Question	3+4+5+5+12 =29 (22 Likert + 7 Multiple Choice Questions)					Total
Comment	220					
Sections	1	2	3	4	5	
Total questions	3	4	5	5	12	29
Consensus	2	4	5	3	12	27 (93.1%)

Demographics

What type of institution you are currently working with?

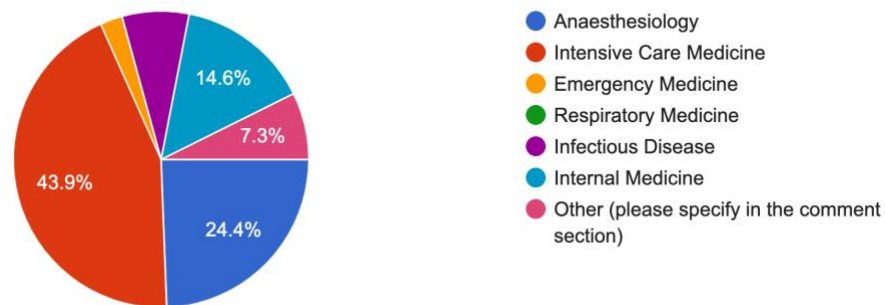
41 responses



Median age: 56 years (IQR18)

Which of the following is your base speciality?

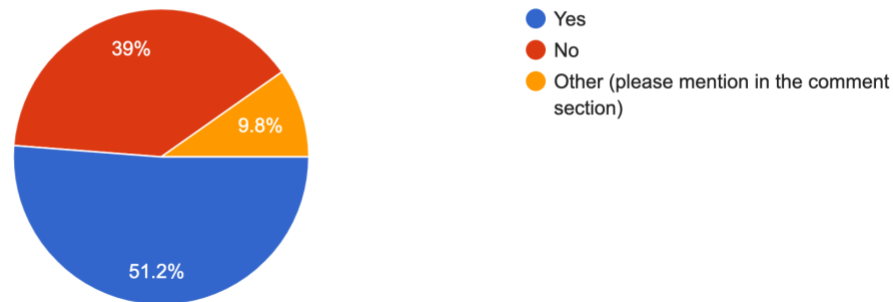
41 responses



Other: Pediatrics-2
General Surgery-1

Do you have a guideline for management of sepsis in your country?

41 responses

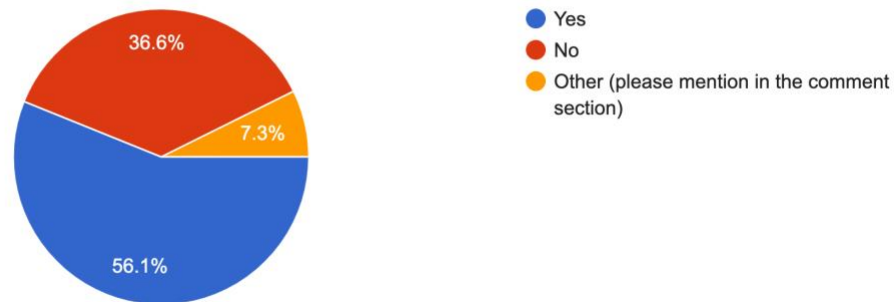


Anonymous comments

1. They are not mandatory
2. Translated version of SSC-2021 and Local in-country guidance
3. SSC are generally followed
4. Guidelines are available for antibiotic use in common clinical syndromes by Indian council for medical research, guidelines for infection control and prevention by ministry of health and family welfare
5. We do not have a uniform national guideline, but do have publicly reported performance on sepsis measures.
6. While there are no specific local guidelines, the guidelines of the Surviving Sepsis campaign are widely accepted and utilized
7. We use the Surviving Sepsis Campaign Guidelines, which are not specific to my country, but certainly pertinent. We also have the ACEP DART guidance.
8. There was a guideline for the management of nosocomial infections published many years ago; Guidelines on Candida auris infections exist; There are broad national HIV and tuberculosis guidelines. Guidelines for the management of COVID-19 infection are available
9. no comment
10. Suggestion to rephrase as 'Do you have National Guidelines for management of sepsis in your country'. Example is we have sepsis guidelines for Pakistan written by a group of doctors from various relevant specialties, however they are not 'National Guidelines' endorsed by the Government or Ministry of Health and therefore have limited reach.

Do you have a guideline for management of sepsis in your hospital/institute?

41 responses



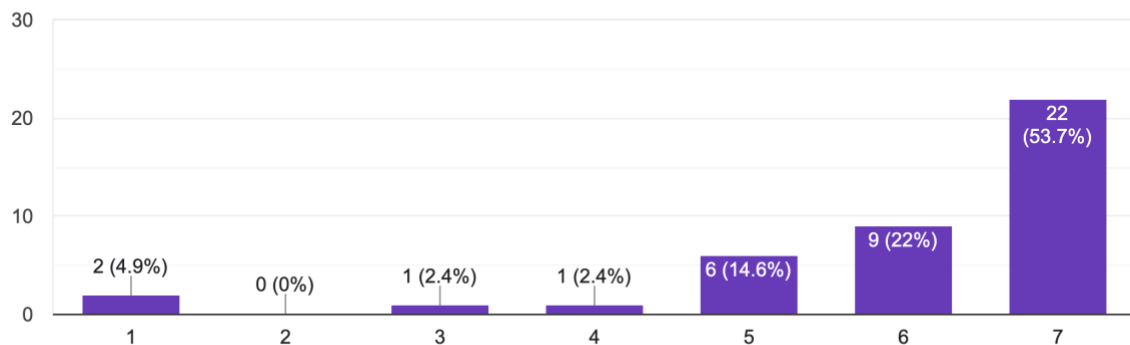
Anonymous comments

1. www.sccm.org › Surviving-Sepsis-Guidelines-2021Surviving Sepsis Campaign Guidelines 2021 | SCCM
2. Part of ICU protocol in latest draft but still awaiting print
3. We have it in the form of order set
4. Antibiotic guideline for community and hospital acquired infection, based on hospital antibiogram updated annually
5. On most cases SSC guidelines are followed
6. not for whole hospital, some of the units have it
7. We have a general guideline for approach, and an order set in the electronic health record
8. While there is no specific guideline for sepsis, there are guidelines for the management of shock, hypoxemia, antibiotic administration
9. Many will try and follow the Surviving Sepsis Campaign guideline where feasible
10. Suggestion to ask another question before asking about National and Institutional guidelines: Do you have a 'National Action Plan on Sepsis' in your country?

Domain 1: Need for additional clinical guidance for managing adult sepsis in resource-limited settings.

1. Clinical guidelines for the management of sepsis in high-income countries may not be applicable to resource-limited settings. It is important to have...ng adults with sepsis in resource-limited settings.

41 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (90%)	Not Applicable (NA)

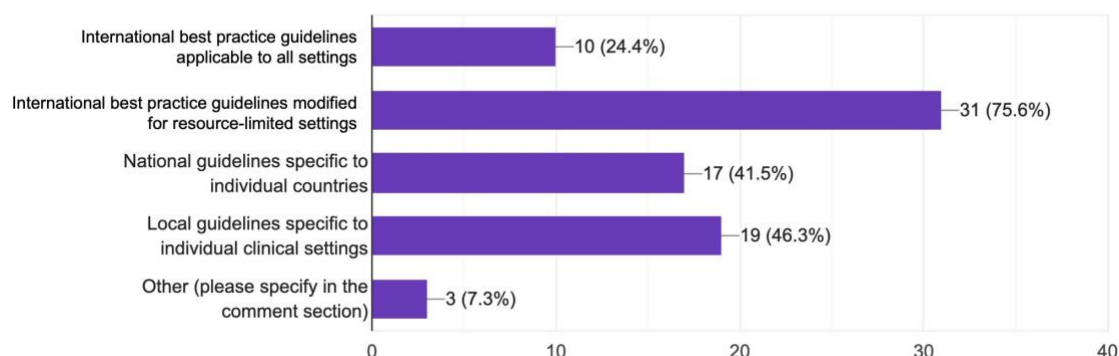
Anonymous comments

1. I understand that it is important to have guidelines for LMICs, not so convinced that this need to be a specific and separated one.
2. My country has triple level of hospital care. Primary level hospital and secondary level hospitals and tertiary level hospitals. Primary and secondary level hospitals are belonged to the resource limited settings.
3. Due resource limitation and lack of skilled human resources
4. Initial resuscitation with fluid bolus has been found to be detrimental in sepsis in LMIC in pediatric population (Feast trial) Drawing blood cultures prior to antibiotic may lead to delay in administering antibiotics in primary and secondary care hospitals due to less availability of on-site blood culture bottles Ability to assess lactate may not be possible in many facilities in LMIC
5. There is uncertain as to the benefits and potential harms of sepsis treatments that have been studied only in high income centers.
6. The two statements in the stem are somewhat divergent. Consider whether this question would be better as two separate statements. The second statement (somewhat captured in the next question) can try to ascertain whether respondents think that existing HIC guidelines (i.e., Surviving Sepsis Guidelines) have a strong foundation and should be used for adaptation and contextualization to formulate LMIC guidelines, or that existing HIC guidelines are irrelevant and the process should be started anew from a LMIC perspective. In other words, should the current process be modified, or does a new parallel process need to be established?
7. Specific guidance is needed for sure. Whether that should take the form of a different guideline vs implementation protocol is less clear.

8. The latest Surviving Sepsis Campaign guideline has tried to improve applicability but significant deficits exist
9. the guideline extensors are aware of the problem
10. We only have the Sepsis Six bundle to guide clinical management in the Pediatric units
11. there is only one way to treat patients throughout the globe
12. Although my answer highlights some limitations to apply international guidelines to resource-limited settings, many points commented in SSC guidelines might be adjustable to low-income countries

2. Guidelines for managing adults with sepsis in resource-limited settings should ideally be:

41 responses



Status	Consensus	Stability
Consensus not achieved and stability not checked	No	NA

Anonymous comments

- 1 Best practice guidelines modified to resource limited settings, however even that should be tailored to extent of resources available
- 2 However, the modifications should be based on with adequate evidence, not just tweaking present literature to cater to lower resources.
- 3 One can't have different guidelines for each country. We should have guidelines for RLS which can be modified for specific setting
- 4 3 types of guidelines needed, appropriate for I, II, III level of care
- 5 Universal guideline for LMIC may not be possible due to heterogeneity of health care delivery. It should be divided into public or private health care, metro or non-metro facility with less resources in non-metro and public hospital
- 6 International best practice guidelines should have, in each section, a comment about how to apply them in low- resource settings. I don't think separate guidelines for HICs and LMICs should exist, but a comprehensive approach to the different situations in one only guideline.
- 7 Within each region or country, there are variable levels of resources. Ultimately, I think every guideline needs adaptation at the local level, but high-level agreement as to goals at an international and national level can lead the way for people to then adapt at the local level.
- 8 I see the word 'modified' as being something different than 'adapted'. I selected that option because I think that the intention is the same, but worth considering whether the co-Is consider there being an important enough distinction to include both. As well, though option 4 approximates it, I'm not sure any of the choices capture the possibility that even within LMIC settings there is quite a wide variability in available resources so taking into consideration key questions (e.g., is there recourse to mechanical ventilation and other ICU-level care) is critical to be able to formulate guidance that is fit for a specific setting.
- 9 There are a number of issues: firstly, there is an enormous range of resource limitation (e.g., per capita spending on health varies from <\$30 per capita per annum to >\$10000 per capita per annum. The guidelines cannot be identical across this range. The ranges of age, disease patterns, specific pathogens etc. may vary enormously across countries.

- 10 All guidelines should be international so we can include everyone in clinical trials and enhance generalizability across varied populations
- 11 I think there is value in having broad guidelines to improve awareness/dissemination and streamline the labor-intensive review of data. Guidelines can then be supplemented by local guidance/protocols (ie, country, region, or hospital-specific) to addressing how broad guidelines should be implemented locally. Local guidance/protocols take into account local case-mix, epidemiology, resources, etc., to inform the local implementation of guideline recommendations, but don't involve the extensive evidence review & synthesis that is conducted by major guidelines. So, in short, I think a broad guideline for resource-limited settings is the most pragmatic approach, which local guidance/protocols focused on how to apply the guidelines rather than re-developing a whole new guideline, which requires more resources.
- 12 There is applicability for all of the above. Local and national elements and considerations are pertinent too
- 13 Sepsis Care is not one size fits all.
- 14 It could be interesting to adapt guidelines to resource-limited settings
- 15 There can be significant variation in ICU infrastructure and resource availability within a country. Hence international or national guidelines may need to be adapted to individual hospital/practice settings

3. What elements should be included in guidelines for managing adults with sepsis in resource-limited settings?

	Statement	Not-important	Neutral	Important
1	Suitable alternative clinical locations to manage adults with sepsis if critical care not available or at capacity	4 (10%)	4 (10%)	33 (80%)
2	Alternative diagnostic methods if recommended pathology tests/equipment not available	0	0	41 (100%)
3	Alternative clinical management methods (e.g., medications, fluids, equipment, etc. are not available)	1 (2%)	3 (8%)	37 (90%)
4	Alternative strategies if appropriate staff and/or staff expertise are not available	1 (2%)	3 (8%)	37 (90%)
5	Alternative strategies to support recovery	2 (5%)	5 (12%)	34 (83%)

Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (statements: 1–5)	NA

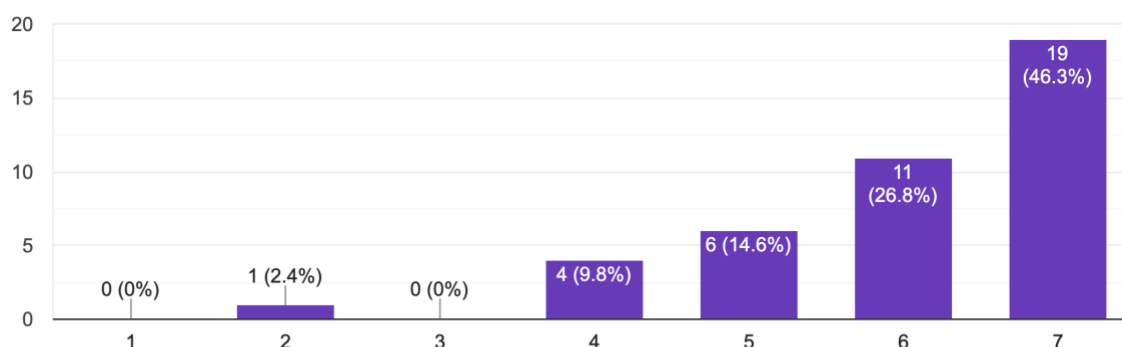
Anonymous comments

1. Triage guideline should be recommended. .
2. Suggestion 1: Alternative strategies for recognizing sepsis with limited resources (without expert physicians and/or access to laboratory tests) Suggestion 2: Alternative strategies to support recovery and rehabilitation. This can be one question or 2 separate questions.
3. I think guidelines should focus on the recommended treatments and management strategies, and second-line treatments/management strategies when the preferred option is not available. Issues related to staff / beds are probably better left to local protocols/guidance. I'm not exactly sure what is meant by alternative strategies to support recovery, so graded that in the middle.
4. All of these are very important.
5. Point 1: Does this statement insinuate that critical care is limited to a location? It is a weak recommendation in SCCM guidelines.
6. Address late presentations, home management
7. The problem is that standards need to "set the bar" as to what should be made available, as well as be realistic as to what is possible.
8. Question 1 is a bit unclear in its phrasing, and it seems that its intention is captured in question 3. I'm not sure that you're getting substantially more information by asking both questions instead of combining them.
9. Recognition, sound clinical acumen, and initial principled and basic appropriate management hugely relevant. There is a massive paucity of rehabilitation services

Domain 2: Need for additional clinical guidance on differences in population characteristics and disease type for managing adult sepsis in resource-limited settings.

1. Clinical guidance for managing adult sepsis should address different population characteristics relevant to resource-limited settings.

41 responses



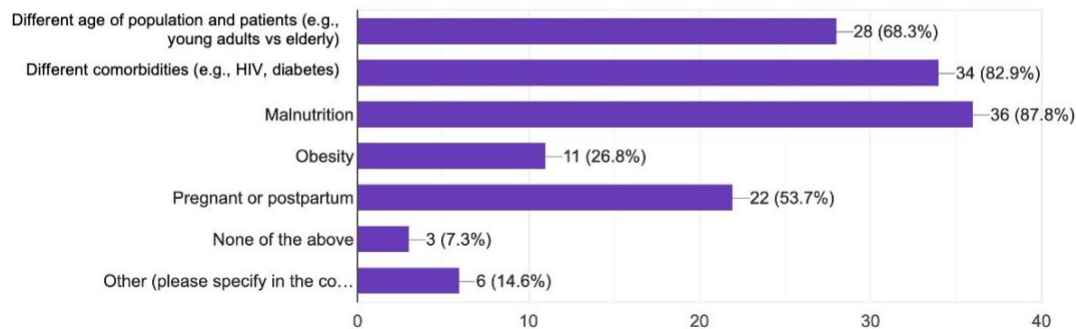
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (87.8%)	NA

Anonymous comments

1. This gets to the eternal questions of host, pathogen, host-pathogen interactions and health system-based factors and their impact on sepsis care and outcomes.
2. This applies to elderly, children and neonates
3. Relevant patient population difficult to define, diseases, syndromes, comorbidities usually same as resource rich countries, delayed presentation and concomitant malnutrition may be associated
4. personalized approach is the issue
5. Age, Body weight, Nutritional Status, Psychologic / Family support, earlier home discharge than in HICs to reduce reinfections where possible
6. The population of patients seen in resource-limited settings tends to be younger; with increased trauma; with a lifelong history of exposure to different pathogens (particularly organisms such as malaria etc.
7. Should also have some section on Tropical fevers
8. In general, comorbidities are similar among countries. Nevertheless, degree of previous care of such comorbidities might lead to quite different clinical outcomes when sepsis / septic shock is developed. Actually, limited previous care (of any comorbid condition) will determine more difficult course of sepsis / septic shock

2. What population characteristics may be different from high-income settings and should be considered in managing adult sepsis in resource-limited settings?

41 responses



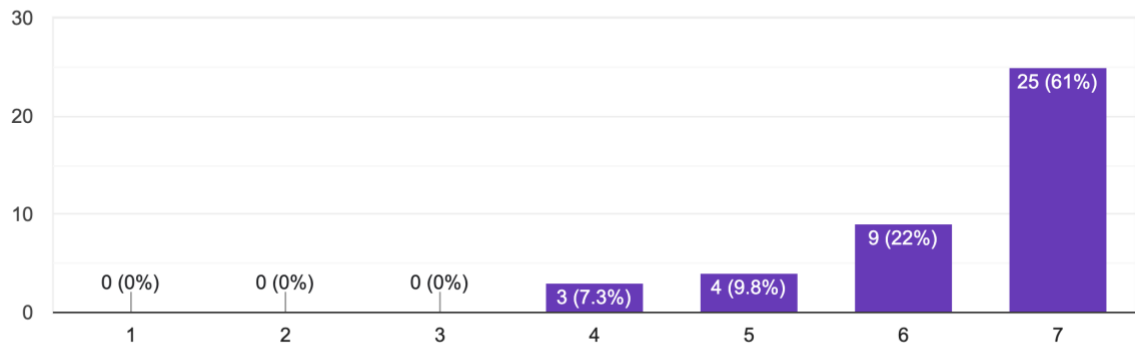
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (Options 2, 3)	NA

Anonymous comments

1. We should treat all patients everywhere
2. Financial, clinical expertise, resources
3. type of infections
4. Access to health care. Difficulties in accessing the appropriate level of health care may lead to delay in diagnosis and early intervention
5. Delayed presentation, prior antibiotic use , no previous medical records.
6. TB and Chronic/end stage renal disease are common co-comorbidities in addition to HIV and diabetes. Deliveries, abortions and renal transplants done under unhygienic conditions at home or unlawful clinics
7. All of the above
8. Socioeconomic status
9. All applicable in our setting. our septic ICU population average age 40 years and average APACHE 29
10. Poly-trauma
11. Different etiologies (e.g., Mycobacterium tuberculosis blood stream infection as a common cause of sepsis in HIV/TB-endemic areas)
12. Smoking, pollution exposure, recreational drugs, traditional healers, herbal intoxications, regions patients come from and amenities, level of education, language differences
13. Malignant conditions, other NCDs like diabetes, COPD, stroke

3. Clinical guidance should address different etiologies of sepsis in adults related to resource-limited settings.

41 responses



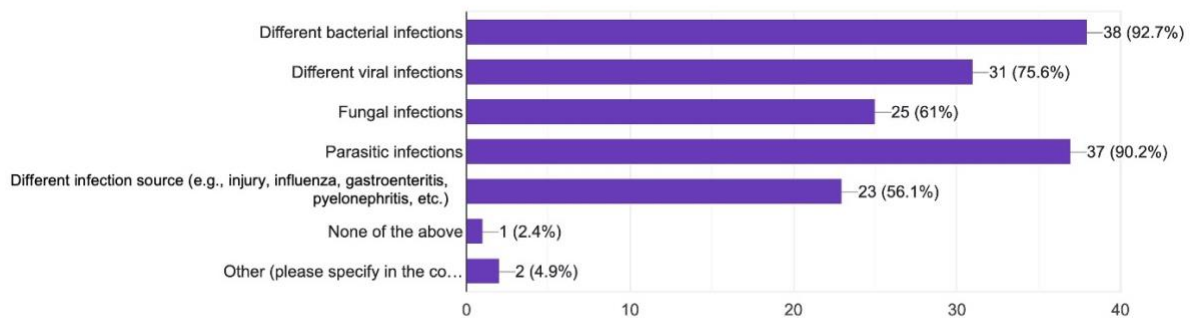
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (92.7%)	NA

Anonymous comments

1. In any settings identification of the cause or etiology of sepsis is vital.
2. Tropical infections, multi drug resistant gram negative infections, tuberculosis , mucormycosis
3. Many regions have specific infectious disease that may alter management guidelines
4. TBC
5. Different sources of infection might lead to different courses of sepsis (i.e., abdominal sepsis completely different from pulmonary sepsis; consequently, some resuscitative interventions could not be interchangeable)

4. What different etiologies of sepsis should be considered in managing adult sepsis in resource-limited settings?

41 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (Options: 1, 4)	NA

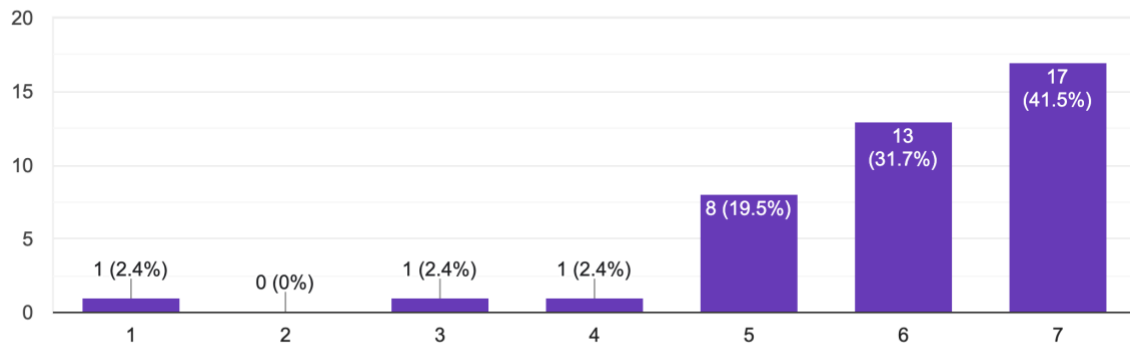
Anonymous comments

1. It is important to know the geographical as well as seasonal variations when considering the etiology of sepsis. this is not restricted to resource-limited settings.
2. Tuberculosis, dengue, malaria, typhoid, typhus, leptospirosis
3. Septic abortions/postpartum sepsis after home deliveries
4. TBC
5. Post-surgical/ trauma
6. Many resource-limited settings are in tropical settings so that diseases such as malaria are much more common. The proximity to animals means that zoonotic infections are much more common. Significant attention needs to be paid the problems of nosocomial infection and multiple antibiotic resistance
7. Rickettsia infections
8. Infection prevention control issues, antimicrobial stewardship and prescription practices, device associated infections are just some additional elements that need to be considered in addition to differences in primary etiology.

Domain 3: Timing and locations for managing adult sepsis in resource-limited settings

1. Guidelines should consider the clinical and operational triggers for escalation of the clinical management of adults with sepsis in resource-limited settings.

41 responses



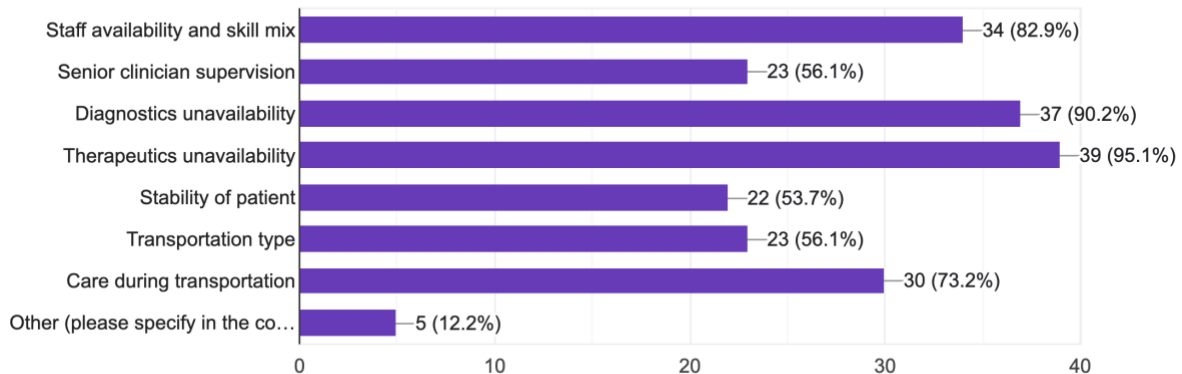
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (92.8%)	NA

Anonymous comments

1. This is a very pragmatic and practical consideration and I think is a bit of an aspirational goal to really address at many levels for the resources available in different settings - functionally, I think each institution/hospital will need to adapt this guidance to the specific setting.
2. Difficult to operationalize
3. The issue of clinical triggers is so variable hospital-by-hospital, this feels beyond the scope of a guideline and better addressed with local guidance/protocols. I practice in 2 hospitals in a well-resourced country and escalation protocols differ markedly between the 2 hospitals due to variation even within well-resources countries.
4. Some LMIC countries may need to identify when to escalate care to other institutions
5. In cases of sepsis source control must be managed with surgical care, Level I should be transferred to the Level II or III
6. Not sure I understand the statement. I would be very conscious before I downplay any triggers and risk apathy in the face of developing sepsis. Equally concerned of overplaying triggers and face burnout.
7. One of the challenges is that the transfer conditions may be sub-optimal, so that decisions around transfer have to include an assessment of the implications of the transfer (not just whether a patient should ideally be transferred
8. Should also include advise on when to shift patient to a higher center

2. Important considerations for transfer of adults with sepsis in resource-limited settings include:

41 responses



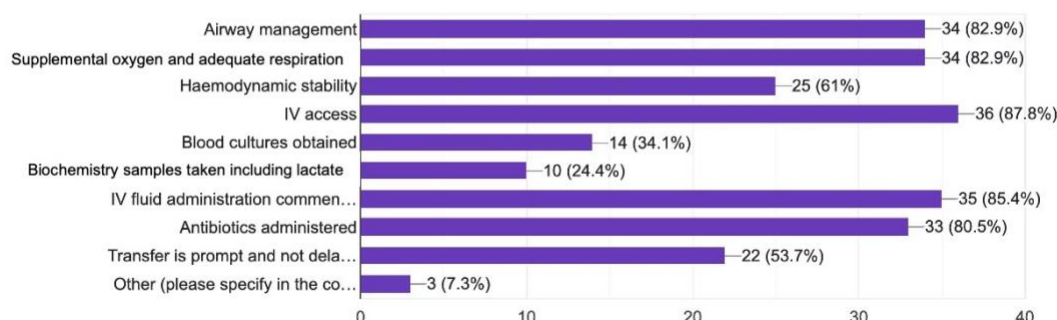
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (Options 1, 3, 4)	NA

Anonymous comments

1. Prognostic factors
2. I am assuming this refers to patient transfer to a different hospital/institution. Is the availability of transfer resources embedded in this?
3. Family and family physicians' preferences
4. Suggested option: Distance to nearest accessible healthcare facility
5. Hard to answer since I think this topic is outside scope.
6. Each region will likely have their own limitations to transfer. May be too difficult to identify, so perhaps country to country might be the best approach. Should be some general statement about when transfer is in the best interest of patients, regardless of stability.
7. Cost considerations if it is not a publicly funded health care system,
8. These are intuitive. The issue remains- are these resources available in adequate numbers and affordable to justify mentioning in 'guidelines'. For example: do we say shift to an ECMO center, if conventional and advance modes are not benefiting the patient, before the end of week one? Will that be helpful in LMIC settings?
9. Capacity to pay if going to a private hospital and availability of ICU bed if being shifted to a public hospital.
10. Options 1 and 2 overlap. Distance/time to a referral center with capacity for advanced care should be a major consideration as to whether a patient should/can be transferred. I don't think this barrier is captured sufficiently by any of the options.
11. Duration of transportation, suitable liaison communication and interaction with staff at facility that patient is being transferred to, adequate medications to cover the transportation process, safety aspects, time of day of transportation additional important considerations

3. What do you consider to be the minimum standard of care required before transferring adults with sepsis in resource-limited settings for a higher level of care (such as to ICU/HDU)?

41 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (1, 2, 4, 7, 8)	NA

Anonymous comments

- Blood culture bottles and analyzers to measure lactate levels may not be available at several low resource locations. airway management expertise may be luxury in many such locations.
- Need more specification, government scheme package patients may only be transferred to certain hospitals, public and private corporate may transfer patients to hospitals they have tied up
- Suggestion to specify that transfer is within one hour. If transfer is expected to take longer than 1 hour then antibiotics, biochemistry, lactate if available and blood cultures should be done before transfer. This question only addresses transfer to ICU/HDU if the patient is already in a hospital setting. Suggestion to add the minimum standard of care required before transferring adults with sepsis in resource-limited settings for a higher level of care (such as a district level or tertiary health care facility/hospital) from a GP clinic, dispensary or Tehsil level facility
- Each region will vary, so a single choice is not possible, just general guidelines
- Whilst all of the above apply, criteria for each of these and the thresholds at which they meet these criteria will vary for each resource limited setting.
- Blood culture and biochemistry samples not available in level I hospitals. for this reason, 6-hour bundle implementation is absolutely not possible in level I setting.
- depending on the site where the patient has presented, it may not be possible to provide multiple therapeutic interventions, and here transfer is the priority. I would really appreciate an analysis of how frequently blood cultures actually change the management of previously well adults presenting with sepsis. There is a desperate need for a much more effective test.
- The stem should say at the beginning something like, 'Assuming that a nearby referral facility with capacity to deliver advanced care exists...'. Also, the options lack the nuance that might be required for consideration

of transferring patient. One key question is whether the referring facility has criteria/SOPs for determining whether to transfer a patient. Also, how to capture what is available at the referring hospital versus what the ambulance system can provide? (i.e., What recourse exists for a patient whose condition is deteriorating during the transport process? If none, then the consideration to transfer might be altered.)

9. Depending on the region, various facilities may not have access to lactate, blood cultures, blood investigations. Ideally would be nice to have done prior to transfer if feasible. Similarly, antibiotic administration following appropriate cultures. Identifying the source of sepsis extremely relevant. There are excellent clinical elements that can be invoked to assist as well if for example lactate testing is not available - they should in my opinion be done anyway!

4. For adult patient with acute sepsis (**non-ventilated**) managed outside a designated critical care area in a resource-limited setting which of the following physiological monitoring, treatment and resources in your opinion is required as **minimum standard of care** to ensure safe and effective care?

	Statement	Disagree	Neutral	Agree
1	Continuous ECG monitoring	11(27%)	9 (22%)	21 (51%)
2	Intermittent manual pulse rate (palpation)	11 (27%)	2 (5%)	28 (68%)
3	Continuous pulse oximetry	9 (22%)	5 (12%)	27 (66%)
4	Intermittent pulse oximetry	11(27%)	3 (7%)	27 (66%)
5	Continuous invasive blood pressure monitoring	29 (71%)	5 (12%)	7 (17%)
6	Intermittent blood pressure monitoring (either non-invasive electronic or manual device)	0	1 (2%)	40 (98%)
7	Continuous Central Venous Pressure monitoring	36 (88%)	1 (2%)	4 (10%)
8	Intermittent Central Venous Pressure monitoring (using a fluid column)	33 (80%)	1 (2%)	7 (17%)
9	Intermittent observed respiratory rate	2 (5%)	2 (5%)	37 (90%)
10	Intermittent capillary refill time (manually assessed)	1 (2%)	3 (7%)	37 (90%)
11	Continuous urine monitoring (Indwelling catheter with hourly measures)	13 (32%)	2 (5%)	26 (63%)
12	Intermittent urine monitoring (Patient voids with urinal)	18 (43%)	7 (17%)	16 (40%)
13	Glasgow Coma Scale (GCS)	3 (7%)	2 (5%)	36 (88%)
14	White blood cell count	6 (15%)	5 (13%)	30 (72%)
15	C-reactive protein	19 (47%)	5 (13%)	17 (40%)
16	Blood sugar level	5 (12%)	4 (10%)	32 (78%)
17	Blood lactate	7 (17%)	7 (17%)	27 (66%)
18	Arterial blood gases	12 (29%)	5 (12%)	24 (59%)
19	Access to basic medical imaging (X-ray or ultrasound)	5 (12%)	3 (7%)	33 (80%)
20	Staff experience/trained in acute care	1 (2%)	5 (12%)	35 (85%)
21	Documented process/tool to escalate care due to the risk of, or actual, clinical deterioration	3 (7%)	4 (10%)	34 (83%)
22	Clinical supervision by appropriately experienced staff on site or immediately available	2 (5%)	3 (7%)	36 (88%)
23	Access to source-control/surgery	4 (10%)	5 (12%)	32 (78%)

Status	Consensus	Stability
Consensus achieved but stability not checked	Yes Agreement (6, 9, 10, 13, 14, 16, 19-23) Disagreement (5, 7, 8)	NA

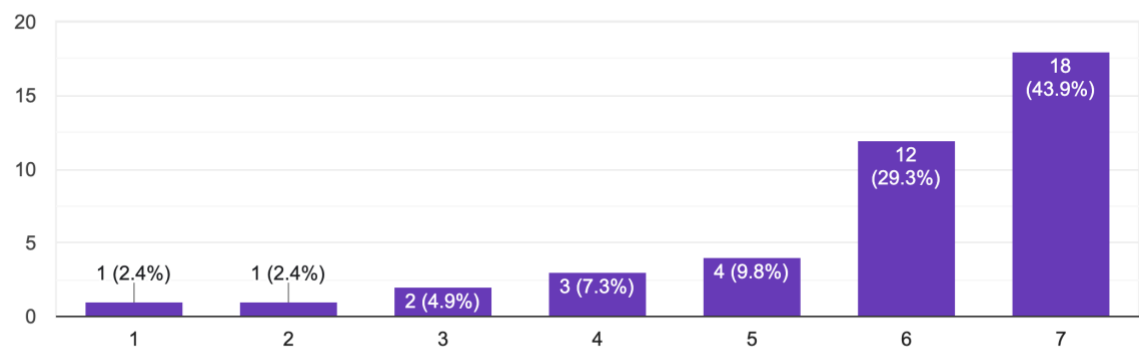
Anonymous comments

1. Staff to patient ratio, workload and lack of Point-of-Care at the bedside are areas to consider too.

2. Suggestion 1: Use the term Neurological Observation (AVPU/GCS)
Suggestion 2: Add option of VBGs if expertise for ABG is not available or this test is outsourced to a laboratory.
3. In my country, level I hospitals located far from level II hospitals. Populations per level I hospital are few. They have few cases of sepsis at their hospitals. So they need to do initial resuscitation with medications. Surgical care and expert of acute care practitioners cannot live there. Telemedicine consultant can be work. If source control needs to done with surgeon, they need to transport from level I hospitals to central hospitals.
4. Supervision can be remotely done via Net/ smartphone.

5. Guidance on when to transfer an adult patient recovering from sepsis from critical care to intermediate or acute care (i.e., ICU discharge) should...guidelines for adults in resource-limited settings.

41 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (83%)	NA

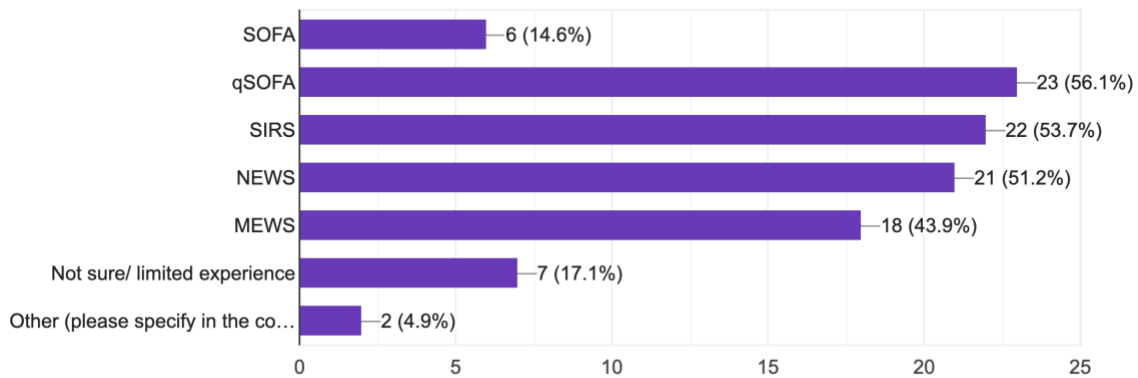
Anonymous comments

- 1. Delay in discharge often leads to patient picking other Multi- resistant strains.

Domain 4: Diagnostic considerations for sepsis in adults with suspected or proven infection in resource-limited settings.

1. In your experience, which of the following are feasible for the screening of sepsis in most resource-limited settings?

41 responses



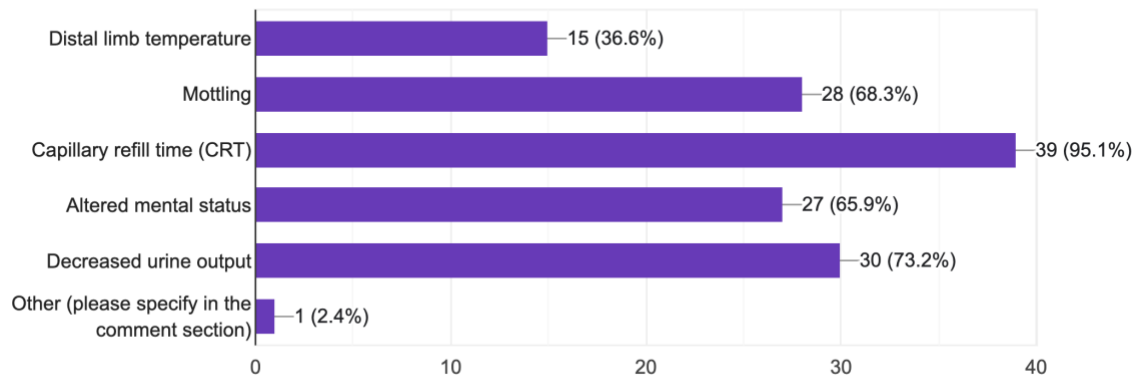
Status	Consensus	Stability
Consensus not achieved and stability not checked	No	NA

Anonymous comments

1. a score may not be necessary
2. qSOFA is a risk-stratifies, but is not an effective screening tool.
3. WBC, PLT, Neutrophil/Lymphocyte ratio, visual assessment of sputum, urine, abdominal and skin.
4. Any screening might be supplemented with a referral to experienced personnel: whether physical or tele
5. I have limited experience of use of these scores in adults
6. Modified SOFA is also feasible
7. The question asks about feasibility which is why qSOFA was checked, but if asked about which one should be prioritized, I would not include qSOFA.
8. Alerts to the possibility of sepsis. Simplicity important. Sound clinical acumen is imperative.

2. In the absence of serum lactate, which of the following clinical parameters alone or in combination are just as useful as lactate in assessing tissue hypoperfusion?

41 responses



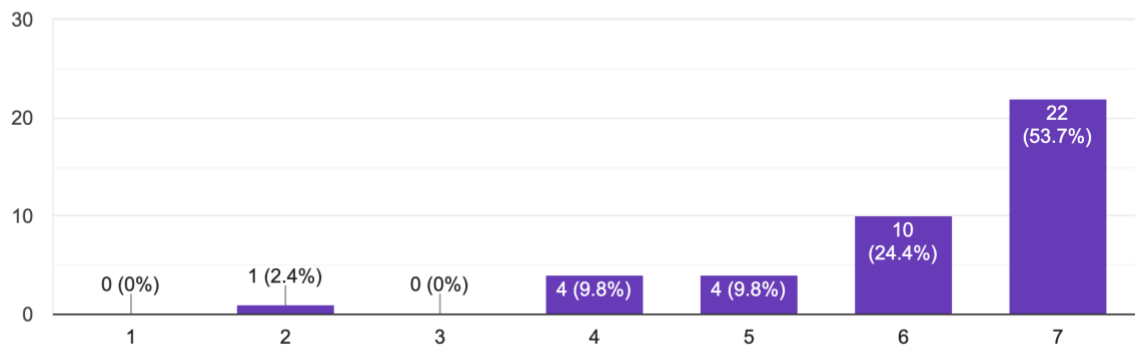
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (Option 3)	NA

Anonymous comments

1. Good clinical assessment, but this is with or without lactate
2. I selected multiple options but I have concerns about calling them just as useful as lactate. I think they are useful tools in assessing tissue hypoperfusion, but don't consider any of them equivalent to lactate based on the current evidence.
3. Subtle mottling in a dark-skinned patient is probably not readily visible, and obvious mottling may indicate severe hypoperfusion. Similarly cool limbs in a hot ambient weather.
4. nearly as useful... hard to say these are just as useful.
5. Hematocrit
6. CRT at the top of the list (i.e., extrapolating from ANDROMEDA); the others in combination might contribute to similar decisions that might be made based on just lactate
7. All useful. CRT extremely useful

3. Urine output should be monitored in all adult patients with sepsis in resource-limited settings.

41 responses



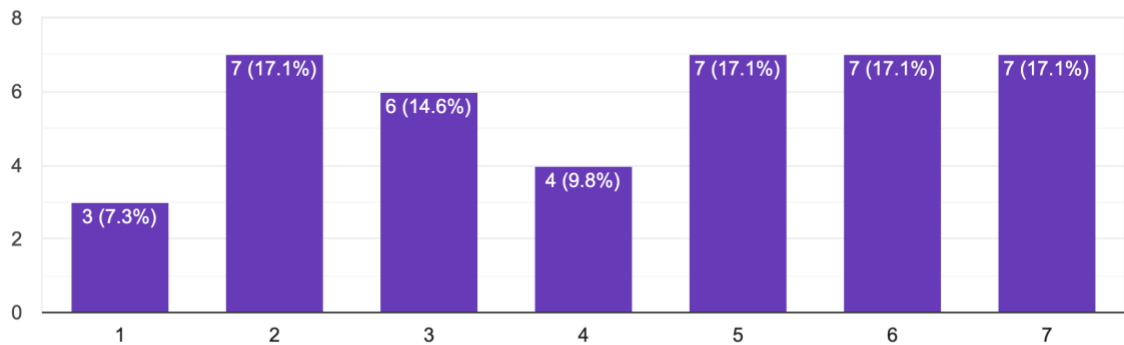
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (82.5%)	NA

Anonymous comments

1. It certainly makes sense to monitor urine output when a patient is able to pass urine intermittently with control. However, when patients are sicker, it is not always that appropriate to pass urinary catheters

4. Urine output should be monitored in all adult patients with sepsis in resource-limited settings using an indwelling urinary catheter.

41 responses



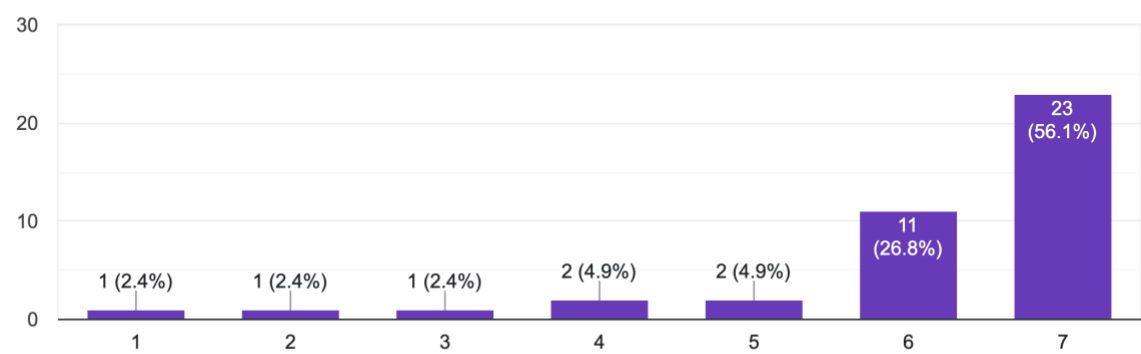
Status	Consensus	Stability
Consensus not achieved and stability not checked	No	NA

Anonymous comments

1. Whenever possible
2. High-rate catheter related urinary tract infection
3. If patient is cooperative, monitoring of urine can be achieved by measuring the urine volume using urine container. Indwelling catheter is only research to patient who are ventilated or sedated. Indwelling catheter increase risk of urinary tract infection.
4. Indwelling catheter required only if in shock or has AKI.
5. Need to consider severity of illness
6. In males if the patient is conscious condom catheter may be used

5. Urine output should be monitored in all adult patients with septic shock in resource-limited settings using an indwelling urinary catheter.

41 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (87.9%)	NA

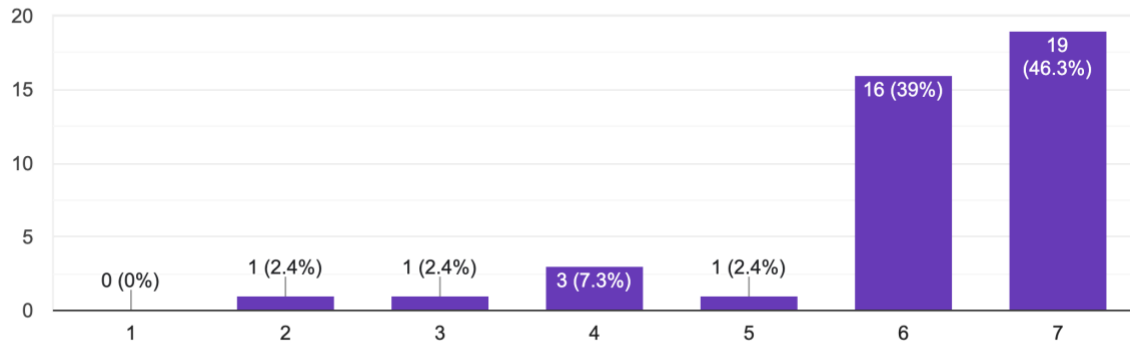
Anonymous comments

- 1. Whenever possible

Domain 5: Clinical management of adults with sepsis in resource-limited settings

1. Clinical parameters such as capillary refill time, hematocrit and urine output may be used in to guide resuscitation over decreasing lactate, if lactate is not available.

41 responses



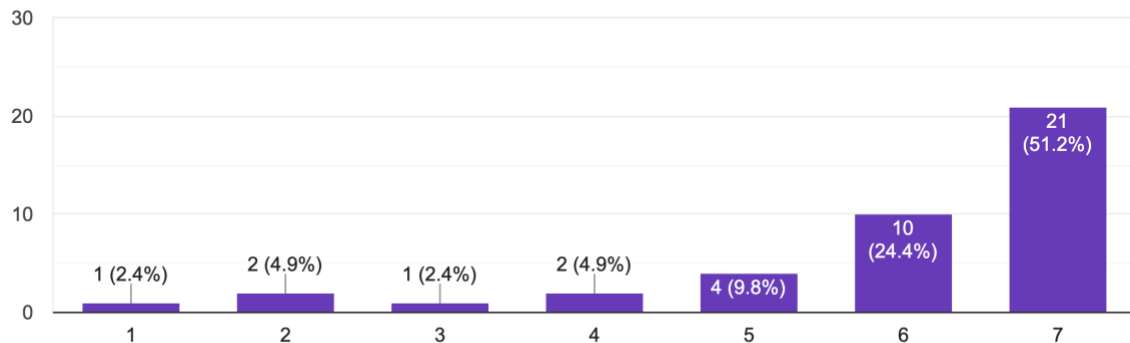
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (87.9%)	NA

Anonymous comments

1. Hematocrit may not be a good guide as anemia is prevalent at baseline and many variables will affect this
2. CRP can be used as part of the management tool.
3. I agree about CRT, but not HCT.
4. Agree with CRT and urine output. Not with hematocrit.
5. the real challenge with urine output, is that when there are additional issues which may increase urine output (such as diabetes), or decrease urine output (such as renal damage), then chasing fluid replacement on the basis of urine output may create additional problems

2. For adults with possible sepsis without shock, where investigations to exclude a non-infectious cause of acute illness are not readily available and...microbials should be administered without delay.

41 responses



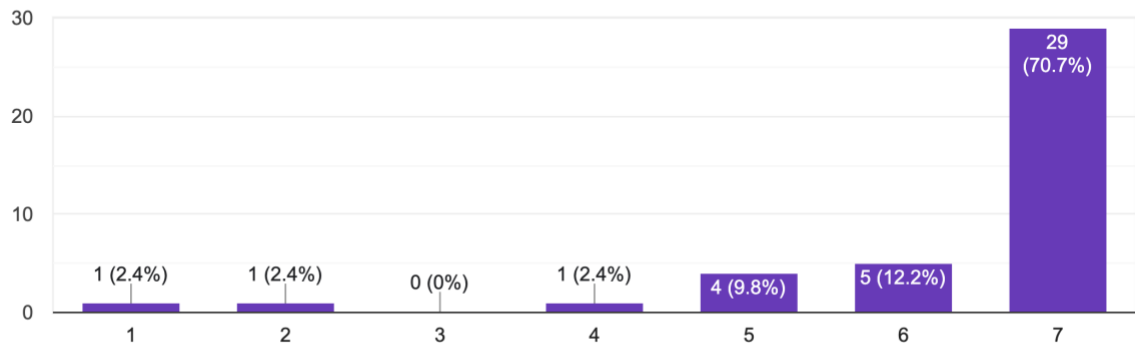
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (87.9%)	NA

Anonymous comments

1. The concept of "readily available" is subjective. If sepsis is possible present antimicrobials should be started promptly while we are investigating.
2. In septic shock only
3. I think the key statement here is "concern for infection persists". If infection is suspected and an antimicrobial that may treat that infection is available, I think it should be treated.
4. Diagnostic tests are delayed, due to out-of-pocket expenses, poverty, lack of ideal laboratory facilities, delayed results, etc.
5. May lead to over-prescription of antibiotic, as not in shock may be transferred for further diagnostic evaluation
6. I'm struggling to envision a scenario where there is nothing that could be done to evaluate infection, presumably additional history and additional clinical exam could be done in all places that provide antibiotics.
7. In this case practitioners can take advice from experts by a phone call or video call. Consultant adviser need to clear and available at any time.
8. Follow current 3hr window in SSC guidelines
9. It is not particularly problematic to start the initial doses; however, the need / utility of the antibiotics needs to be reviewed as soon as possible
10. Antimicrobial should be administered until the non-infectious cause is proven
11. Which antimicrobials to start needs to be considered and based on some local/regional surveillance data. Otherwise, everyone gets only commonly available broad-spectrum antibiotics (e.g., ceftriaxone) even when treatment may be inappropriate for common etiologies.

3. In the resource-limited settings, for adults with a high likelihood for sepsis or with septic shock, antimicrobials should be administered immedi... ideally within one hour of recognition of sepsis.

41 responses



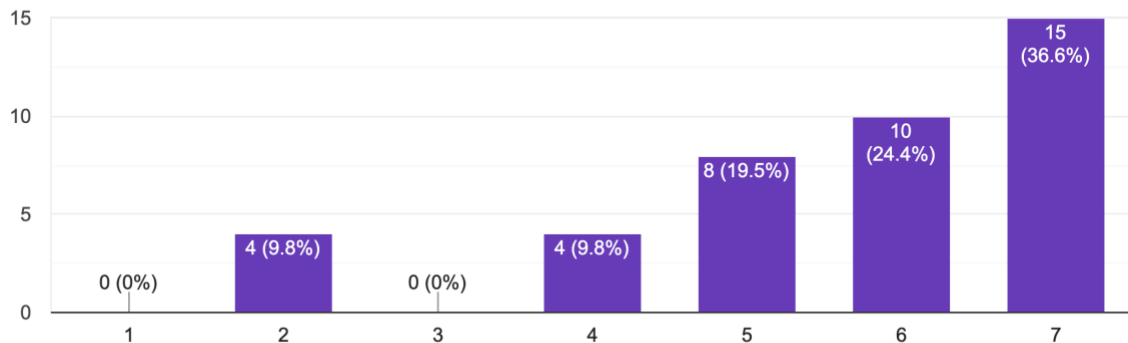
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (92.8%)	NA

Anonymous comments

1. In septic shock only
2. This in reality is not feasible, due to delayed response at the point of entry, delayed triage, patients lack of funds, delayed consultation, delay due to lack of laboratory facilities, rapid diagnostics lacking. Blood culture results in 6-7 days, preliminary report in 48hrs, no appropriate antibiotics.
3. Only in patients with shock, may wait in patient without shock for gram stain and other routine test to decrease spectrum of antibiotic
4. I would like to recommend the wording to " should be administered ideally within one hour of recognition of sepsis or with the shortest delay. Recognizing the challenges associated with an acquiring antibiotic in resource limited settings.
5. 1 hour might be ideal but often unrealistic
6. High likelihood as defined by whom? This needs further deliberation: presently this is ongoing, anyone can call a situation highly likely, including patient family and google symptoms. And we see the resultant MDR infection rates.
7. With consideration 1-3 hours due to availability of facilities such as pharmacies support
8. The question might be better phrased as two separate questions (one for sepsis and one for septic shock).

4. In areas of high risk for parasitic infection, an empirical anti-parasitic agent (e.g., anti-malarial) should be administered without delay to patients with suspected sepsis of parasitic origin.

41 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (80.4%)	NA

Anonymous comments

1. Thick film is easy and available in most place.
2. The burden of Malaria is quite high, therefore, including anti- malarial is apt, particularly in children and pregnant women.
3. In many locations facilities for a complete blood count and examination of a smear for malarial parasites will be available. Presence of anemia and detection of parasites on smear can guide antimalarial treatment.
4. Low-cost screening tools available
5. Seems reasonable, but would defer to panelists with better experience on this topic.
6. I don't live in an area with high incidence of parasitic infections that could cause sepsis so my answer might be inadequate
7. This is rare in my country
8. Only if clinically, it is a high possibility in Endemic area.
9. Should depend on risk with respect to non-parasitic infections. Confirmatory testing should be available.
10. Rapid diagnostic tests useful here, platelet count if feasible, smears

5. For adults with an initial diagnosis of sepsis or septic shock and adequate source control where optimal duration of antibiotic therapy is unclear, the following indicators, **if available, are acceptable** to guide cessation of antibiotic therapy by:

	Statement	Disagree	Neutral	Agree
1	Clinical improvement alone	7 (17%)	4 (10%)	30 (73%)
2	Clinical improvement plus trend in C -reactive protein (CRP)	12 (29%)	6 (15%)	23 (56%)
3	Clinical improvement plus trend in white blood cell (WBC) count	8 (19%)	6 (15%)	27 (66%)
4	Clinical improvement plus trend in procalcitonin	7 (17%)	8 (19%)	26 (63%)

Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (Statement: 1)	NA

Anonymous comments

1. But CRP and procalcitonin are not possible in resource limited setting. Specially level I hospitals
2. Trends without greater specification are vague
3. If PCT is available

6. When the facilities for hemodynamic monitoring are limited, the following may be used to guide fluid therapy?

	Statement	Disagree	Neutral	Agree
1	Fluid challenge	1 (2%)	3 (8%)	37 (90%)
2	Central venous pressure	16 (39%)	8 (20%)	17 (41%)
3	Plethysmographic indices for fluid responsiveness	6 (15%)	12 (29%)	23 (56%)
4	Pulse pressure variation (PPV)	4 (10%)	4 (10%)	33 (80%)
5	Tidal volume challenge (used with PPV)	9 (22%)	5 (12%)	27 (66%)
6	Passive leg raising (used with pulse pressure or PPV)	4 (10%)	4 (10%)	33 (80%)
7	Ultrasonography	4 (10%)	4 (10%)	33 (80%)

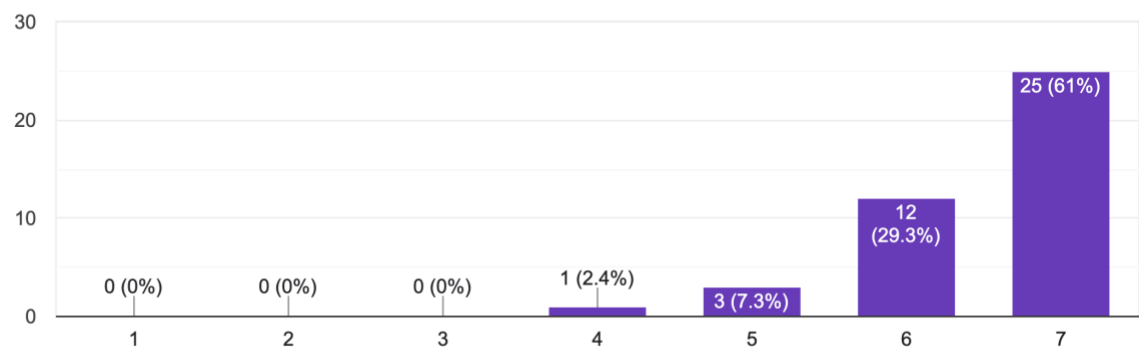
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (Statements: 1, 4, 6, 7)	NA

Anonymous comments

1. Not sure I understood as if invasive arterial monitoring and ultrasound are available there is no limitation.
2. Ultrasonography should be paired with some dynamic change (Vt, volume challenge, PLR etc.), not just a static ultrasound assessment.
3. Plethysmographic variables, PPV, tidal volume challenge assuming patient is mechanically ventilated. PPV, TVC and PLR assuming patient has invasive arterial pressure monitoring
4. CVP only if low, otherwise U/S or Vt challenge or PPV
5. I found this difficult to answer as you say monitoring is limited, not clear where CVP and other indices fit in. If they can do all that, not very different from a resource rich setting.
6. US & Plethysmographic indices may not be available.
7. No option for passive leg raise + fluid challenge?
8. Excellent clinical acumen once again very helpful

7. For adults with sepsis or septic shock, when a balanced salt solution is indicated in resource-limited settings, a non-proprietary balance...r's lactate, Hartmann's solution etc.) may be used.

41 responses



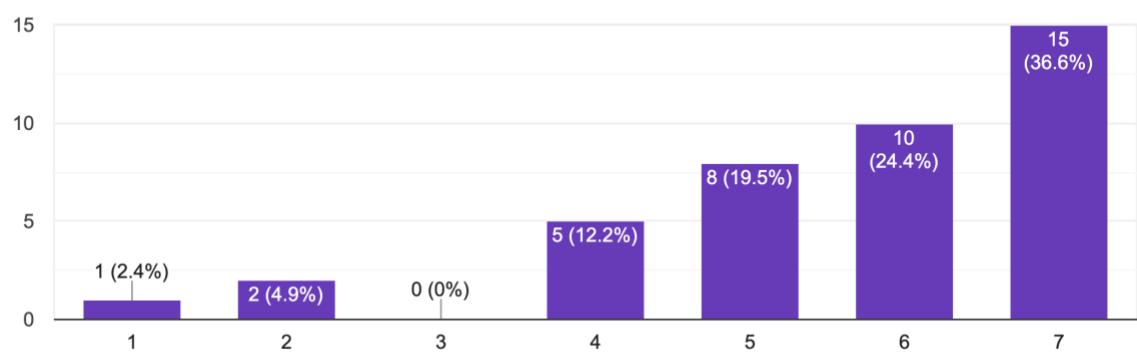
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (97.6%)	NA

Anonymous comments

None

8. Special consideration may be required regarding the volume of fluid for resuscitation in sepsis or septic shock due to tropical infections.

41 responses



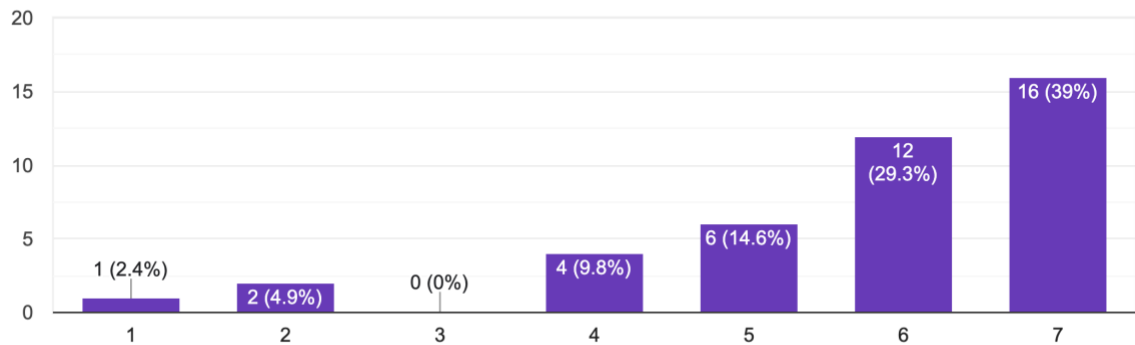
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (80.5%)	NA

Anonymous comments

- 1. I think this is true, though the evidence base for this assumption should be re-examined.
- 2. Particularly in children
- 3. The FEAST study in children was an important piece of work in this regard, however its widespread applicability beyond malaria and to adults is uncertain

9. Epinephrine is an acceptable alternative to vasopressin (if vasopressin not available) in patients with septic shock and an inadequate mean arterial pressure response to norepinephrine.

41 responses



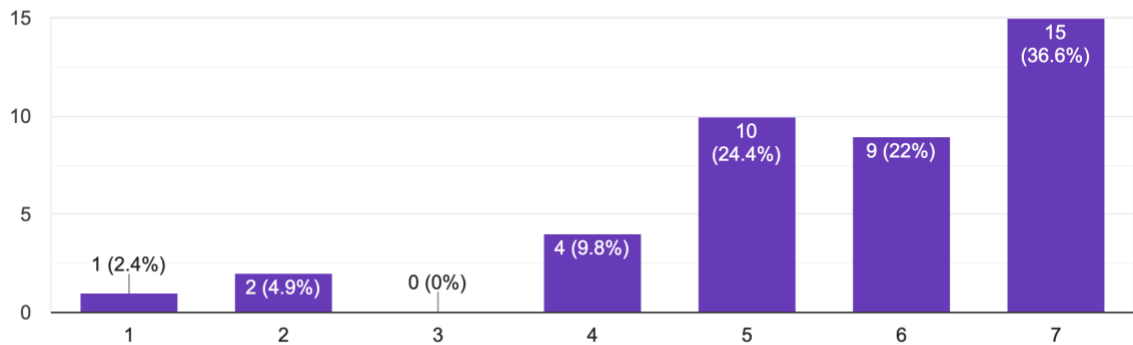
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (Option: 82.9%)	NA

Anonymous comments

1. Epinephrine should be avoided with norepinephrine
2. Difficult to answer, since the “non-response” to Norepinephrine is not well-defined in terms of norepinephrine dose.
3. There will have to be a disclaimer here, given the evidence available. "Short term" use may be acceptable?
4. In my opinion, adding epinephrine to norepinephrine in septic shock is a recommendation that should be deleted from SSC guidelines
5. Vasopressin is not needed in resource-limited countries
6. Ready access to norepinephrine and vasopressin is not available or possible in many resource-limited settings

10. Epinephrine is acceptable alternative to norepinephrine (if norepinephrine not available) in patients with septic shock and inadequate mean arterial pressure.

41 responses



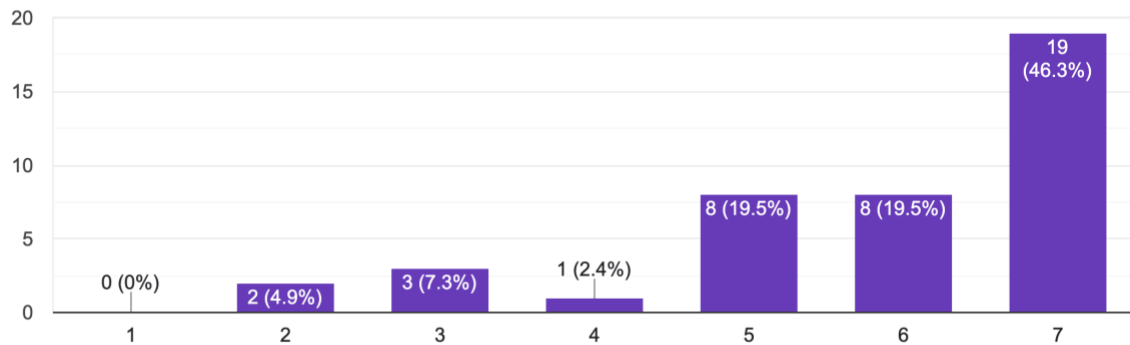
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (Option: 82.9%)	NA

Anonymous comments

1. There is no good alternative
2. Suggestion to clarify if both norepinephrine and vasopressin is not available
3. If definitively NE not available, Epinephrine could be an alternative to increase MAP

11. Vasopressors can be initiated and continued peripherally if central venous access is not available or feasible.

41 responses



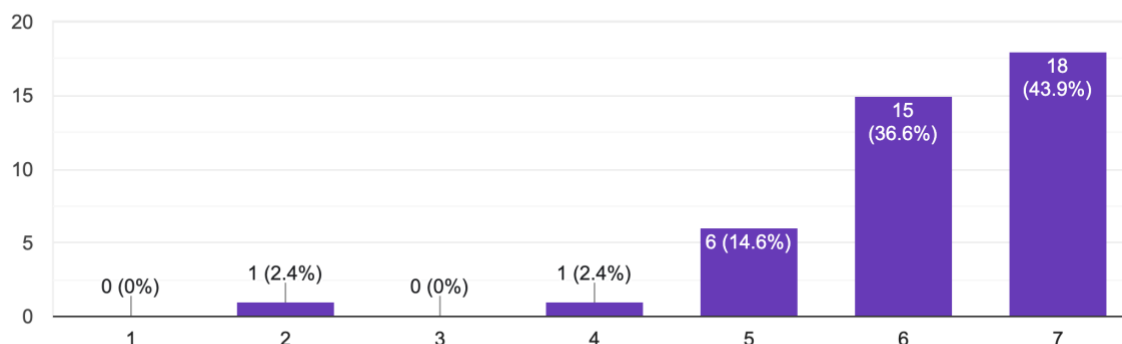
Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (85.4%)	NA

Anonymous comments

1. With adequate safety monitoring
2. large bore, proximal peripheral
3. May be given at a low dose
4. For a maximum of 24-48 hours
5. The “continuation” should be for a few hours (6-8hr?) Until the clinical situation will s define (no more need of vasopressors, o persisting requirements of them, in which case a central venous catheter placement should be considered)
6. That will depend on availability of healthcare personnel to check for possible complications of peripheral infusion in low resource settings
7. If it’s truly not feasible or available, that is what is done. It will need to be ensured the guideline in not interpreted as 'its ok to not try for a central line'
8. With adequate monitoring for extravasation and ischemia
9. Through a large bore cannula above elbow and diluted.
10. YES, at the beginning. If no alternatives to get an initial central line, peripheral infusion should be recommended to increase MAP

12. Non-Invasive ventilation is an acceptable alternative to high flow nasal oxygen (HFNO) if HFNO is not available for the management of acute hypoxic respiratory failure.

41 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (95.2%)	NA

Anonymous comments

1. NIV is rather first choice.
2. I think key is acceptable versus preferred therapy
3. Trials indicate conventional oxygen is as good, but experience is discordant
4. Very simple inexpensive CPAP devices are available and have been used successfully in several resource-limited settings

Do you feel any other aspect of sepsis management in the resource-limited settings needs to be addressed?

1. Alternative of colloids if albumin 5% are not available
2. Post discharge care, maybe also some adjunctive therapies such as glucose control and bicarbonate. ARDS recognition (based on the new definition for LMICs) and management including the issues with p-SILI in non-intubated patients.
3. Adjuvant therapies, EOL care
4. I think guidance on operationalizing screening for sepsis would be great to include.
5. Use of hydrocortisone may be limited
6. Infection Prevention and Control (IPC) is a crucial issue here in LMICs that needs to be addressed; Antimicrobial Resistance (AMR) is another very crucial issue here; Screening and surveillance also.
7. Immunomodulatory therapies must not be missed
8. training of healthcare worker, administrative (QI improvement), education to general population, maternal sepsis
9. Economics: cost effective therapies
10. Clinical management of sepsis related complications like ARDS/AKI Clinical management of recovery and rehabilitation after sepsis or septic shock
11. Rather than local variation, country by country might be better, otherwise the LMIC guidelines will be difficult to interpret.
12. Community / medical staff education about sepsis being a time critical emergency
13. Antimicrobial stewardship
14. Family involvement in monitoring and care needs to be allowed and encouraged in places where nursing backup is inadequate
 - A. Nutrition
 - B. Routine use of antifungals
 - C. Continuous insulin infusion
 - D. Definition of 'fever'
15. Do steroids have different role in LMIC? Home management? Availability of antibiotics? The importance of some sort of antibiotic stewardship given the high prevalence of MDROs
<https://www.sciencedirect.com/science/article/pii/S1198743X17303658>? Glucose control? Is there a role for oral hydration or oral antibiotics (either late or during recovery)?
16. Training of healthcare providers of different cadres in central line insertion. Central temperature monitoring. Advocacy for norepinephrine availability in drug formularies.
17. Mention of steroids with dosages as there is a gross misuse of steroids. Also, de-escalation
18. Yes. Initial macro hemodynamic signals: pulse pressure, diastolic pressure and basic bi-ventricular function assessment; also, potential adjustment of MAP in some populations.

19. Readiness of antimicrobial, vasoactive, rapid access for source control, Neutrophil Lymphocyte Ratio
20. Core elements of general supportive care a consideration
21. Guidelines and SOPs for essential critical care support for sepsis management adapted in each setting

Any other comments related to this survey?

1. Presence of sepsis team, protocol for screening for sepsis, audit on performance availability should be surveyed. Seven options between agreement and disagreement too broad, will lead to too many discordant results and will prolong Delphi, in total 3 to 4 should suffice
2. Perhaps there should be a section or a table for specific infections: malaria, typhoid (<https://www.sciencedirect.com/science/article/pii/S2214109X14703018>), HIV, TB, Dengue etc. B. Is the focus on adults or all ages?

Expert Consensus Statements on the Management of Sepsis in the Resource-limited Settings

Round Two Survey Report

The Round one survey was created on a ‘Google Forms’ platform. The survey went live on June 20, 2023, with a window of 11 days for responses until June 30, 2023, at 5 PM (GMT). This survey was sent to 41 distinguished experts and 40 experts (97.6%) completed the survey in the stipulated time frame. There were 31 questions in the survey, with 23 ordinal Likert scale-based qualitative statements and 8 multiple-choice questions (MCQ) based on qualitative options. A detailed report of the results of each question with the comments is presented below for your perusal. Minor edits have been made in the comments received to maintain the anonymity of the Experts. The steering committee has created a Round THREE questionnaire based on this report.

The steering committee, following extensive discussion, has made the following changes in the questionnaire, based on the responses and comments in round one:

1. Two new questions added as per the comments received.

Consensus	≥70% in favor of agree/disagree, or ≥80% in favor of single option	Analyze for stability
Stability	Chi-square or Kruskal-Wallis test for analysis, p-value <0.05 is significant (not applicable for round 1)	To analyze and aim for stable consensus or dissensus. If stable, the question is dropped from the next round.

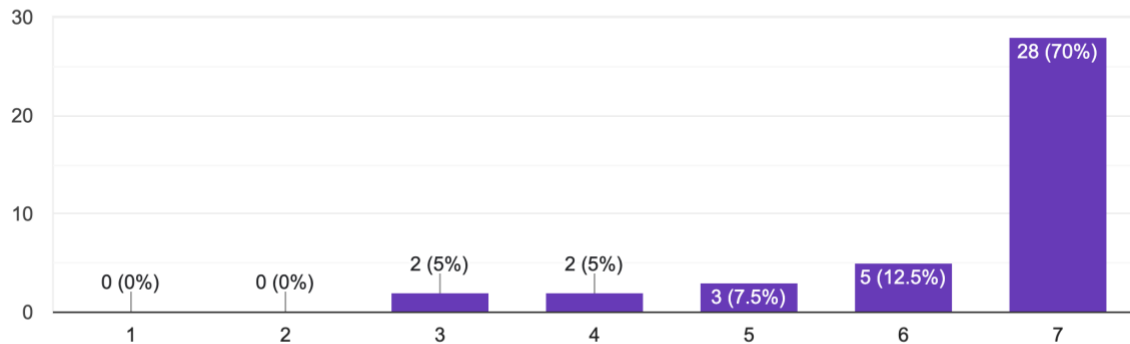
Consensus Matrix

Round	1						2					
Sections	5						5					
Question	3+4+5+5+12 =29 (22 Likert + 7 MCQ)					Total	3+5+6+5+12 =31 (23 Likert + 8 MCQ)					Total
Comment	220						24					
Sections	1	2	3	4	5		1	2	3	4	5	
Total questions	3	4	5	5	12	29	3	5	6	5	12	31
Consensus	2	4	5	3	12	26 (90%)	3	5	6	3	12	29 (94%)
Question dropped	NA	NA	NA	NA	NA		0	0	0	0	0	0
Question added	NA	NA	NA	NA	NA		0	1	1	0	0	2
Question changed	NA	NA	NA	NA	NA		0	0	1	0	2	3
Options changed	NA	NA	NA	NA	NA		2	0	0	0	2	0
Stability checked	NA	NA	NA	NA	NA		2	4	5	5	10	26
Stability achieved	NA	NA	NA	NA	NA		2	3	4	5	5	19 (73%)

Domain 1: Need for additional clinical guidance for managing adult sepsis in resource-limited settings.

1. Clinical guidelines for the management of sepsis in high-income countries may not be applicable to resource-limited settings. It is important to have...ng adults with sepsis in resource-limited settings.

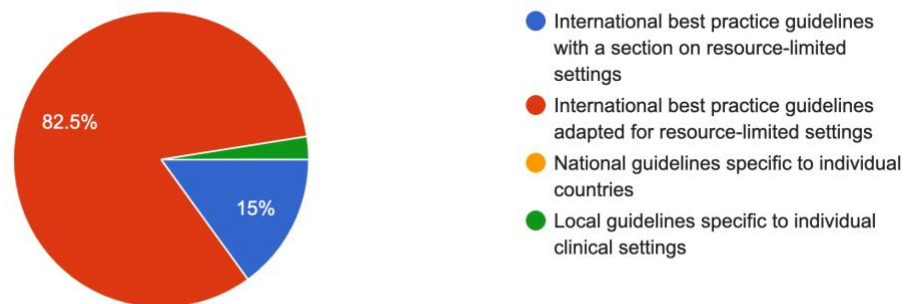
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (90%)	Yes (0.24)

2. Guidelines for managing adults with sepsis in resource-limited settings should ideally be:

40 responses



Status	Consensus	Stability
Consensus achieved and stability not checked	Yes (83%)	NA

3. What elements should be included in guidelines for managing adults with sepsis in resource-limited settings?

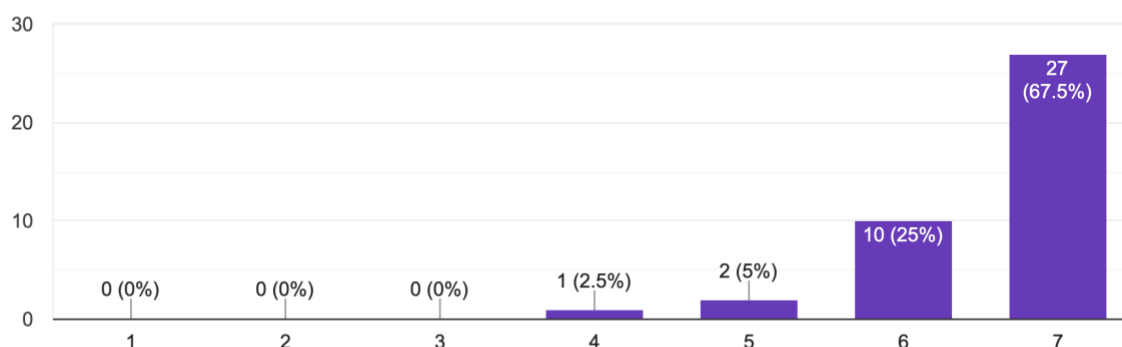
	Statement	Not-important	Neutral	Important	Stability
1	Suitable alternative clinical locations to manage adults with sepsis if critical care not available or at capacity	3 (7%)	2 (5%)	35 (88%)	Yes (0.39)
2	Alternative diagnostic methods if recommended pathology tests/equipment not available	3 (7%)	1 (3%)	36 (90%)	Yes (0.29)
3	Alternative clinical management if methods (e.g., medications, fluids, equipment, etc.) are not available	4 (10%)	1 (3%)	35 (88%)	Yes (0.99)
4	Alternative strategies if appropriate staff and/or staff expertise are not available	5 (13%)	3 (7%)	32 (80%)	Yes (0.84)
5	Locally tailored strategies to support recovery	6 (15%)	3 (7%)	31 (78%)	NA
6	Triage strategies to facilitate optimal use of resources for adults with sepsis when ICU beds are limited	3 (7%)	0	37 (93%)	NA

Status	Consensus	Stability
Consensus and stability achieved	Yes (statements: 1–4)	
Consensus achieved but unstable		No (5, 6)

Domain 2: Need for additional clinical guidance on differences in population characteristics and disease type for managing adult sepsis in resource-limited settings.

1. Clinical guidance for managing adult sepsis should address different population characteristics relevant to resource-limited settings.

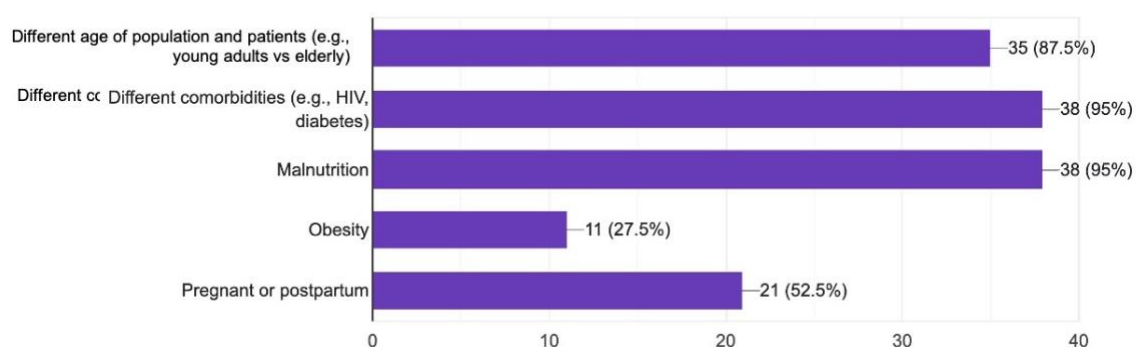
40 responses



Status	Consensus	Stability
Consensus achieved but unstable	Yes (98%)	No (0.04)

2. What population characteristics may be different from high-income settings and should be considered in managing adult sepsis in resource-limited settings?

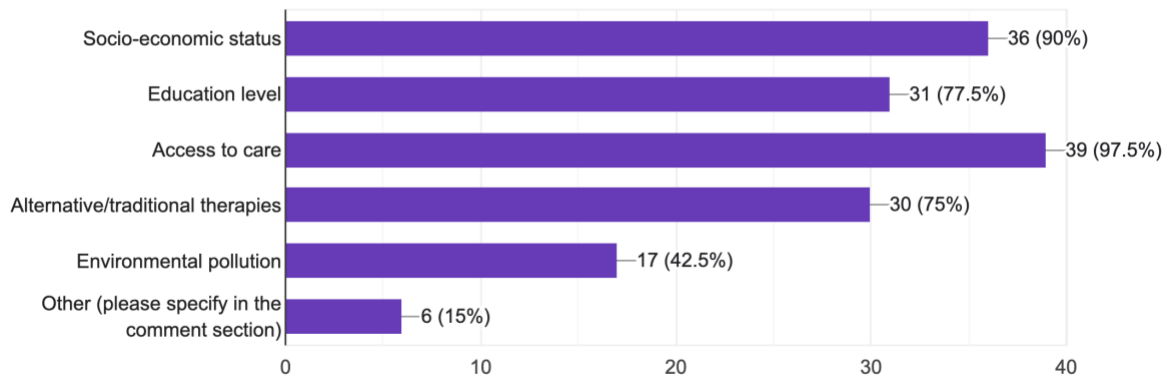
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (Options 1–3)	Yes (0.96)

3. What social and environmental characteristics may be different from high-income settings and should be considered in managing adult sepsis in resource-limited settings?

40 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (1, 3)	NA

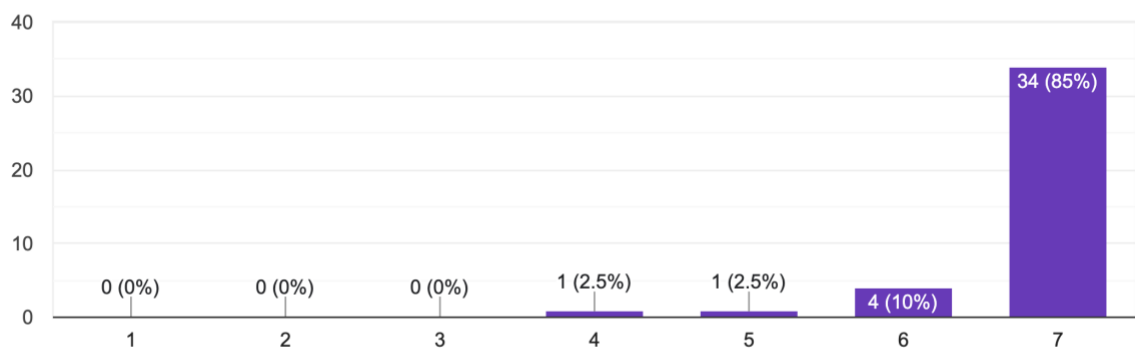
Anonymous comments

1. Diet should be considered as part of this management. e.g., developed countries (clean and healthy food) vs. developing countries (more starch-based/processed food).
2. Structure of healthcare systems (self-paid vs insured vs governmental)
3. Suggestion to add delayed presentation to hospital with facility to manage sepsis as it has reasons other than limited 'access to care' and may be important to account for when managing sepsis in RLS. It starts with delay in recognition of sepsis at home initially and then the clinician/GP due to lack of awareness. later mismanagement and delay of referral by GP/alternative medicine practitioners or faith healers and finally distance travelled to reach a tertiary level facility.
4. Poverty, health-seeking behavior and out of pocket expenditure
5. Geography - part of the issues of managing sepsis relates to movement of patients (from home to healthcare; between healthcare services and institutions etc.). This has implications for how early or late patients will present; how easily or effectively patients can be transported from one center to another; how easily healthcare services can be made available to patients. The geography may also be complicated by weather issues - at certain times of the year travel may be much more difficult than at other times (e.g., during monsoon seasons etc.). Even in high income countries these are factors (e.g. consider travel to the most northerly areas of Canada during winter).
6. Some characteristics proper of the organization of the health system: in Latin America public hospitals have less Human Resources and technology. They are all usually crowded, less available beds, and have to assist a younger, sicker and deprived population

7. Social environment of infection control practices like hand hygiene practice and other strategies
8. Out of Pocket Payment high in LMICs
9. Health literacy level to communicate effectively
10. Insurance coverage
11. End of life care cultural preferences and difference in how it should be explained/ elicited / documented.
12. The options listed are all patient-level. Consider including systems-level indicators (e.g., GDP; Gini coefficient; human development index) too?
13. Late presentation

4. Clinical guidance should address different etiologies of sepsis in adults related to resource-limited settings.

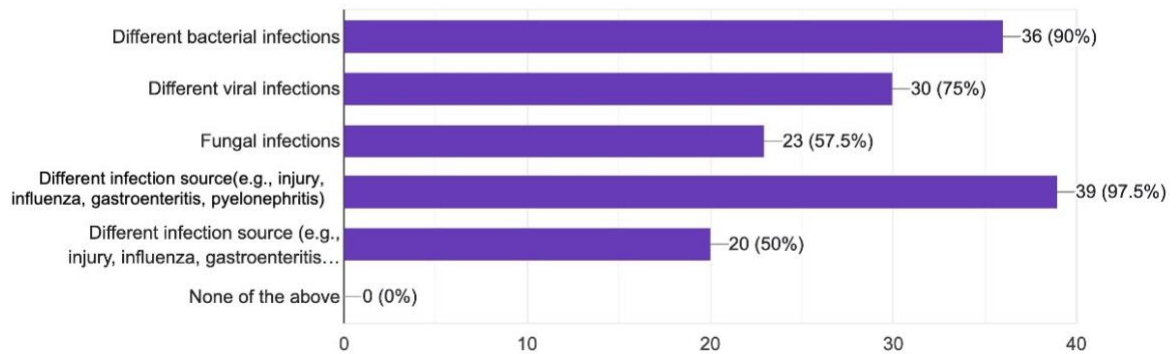
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (98%)	Yes (0.64)

5. What different etiologies of sepsis should be considered in managing adult sepsis in resource-limited settings?

40 responses

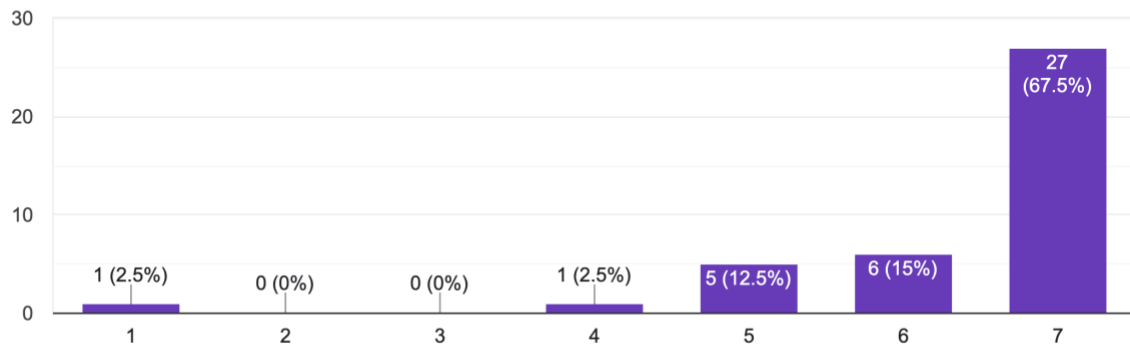


Status	Consensus	Stability
Consensus and stability achieved	Yes (Options: 1, 4)	Yes (0.93)

Domain 3: Timing and locations for managing adult sepsis in resource-limited settings

1. Guidelines should consider the clinical and operational triggers for escalation of the clinical management of adults with sepsis in resource-limited settings.

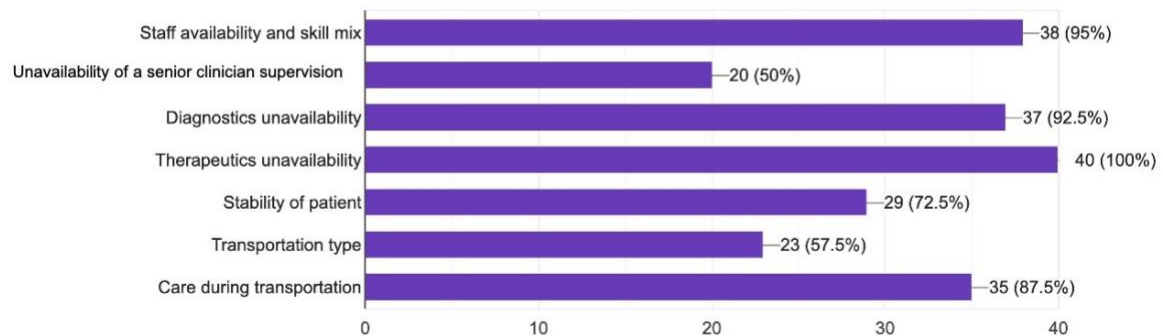
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (95%)	Yes (0.05)

2. Important considerations for transfer (to another facility) of adults with sepsis in resource-limited settings include:

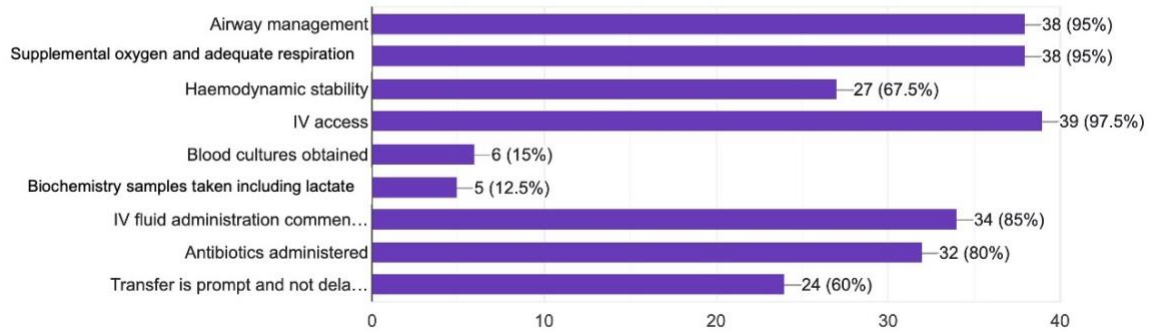
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (Options 1, 3, 4, 7)	Yes (0.96)

3. What do you consider to be the minimum standard of care required before transferring adults with sepsis in resource-limited settings for a higher...l of care (such as to ICU/HDU in another facility)?

40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (1, 2, 4, 7, 8)	Yes (0.64)

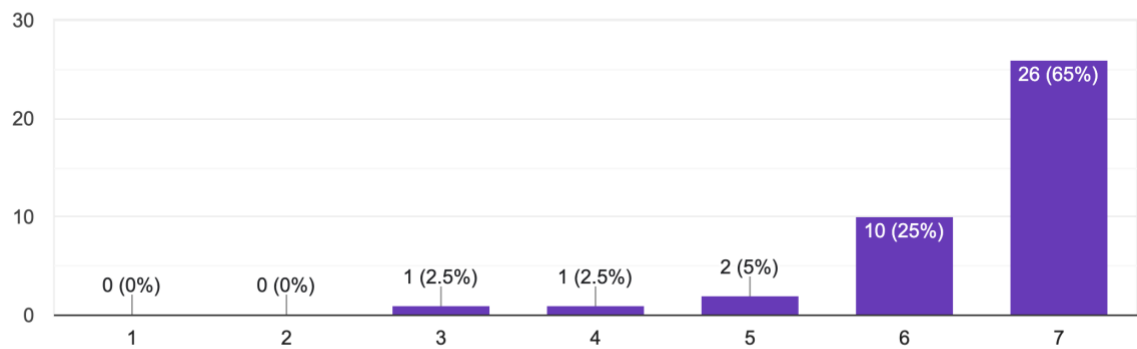
4. For adult patient with acute sepsis (**non-ventilated**) managed outside a designated critical care area in a resource-limited setting which of the following physiological monitoring, treatment and resources in your opinion is required as **minimum standard of care** to ensure safe and effective care?

	Statement	Disagree	Neutral	Agree	Stability
1	Continuous ECG monitoring	15 (38%)	3 (7%)	22 (55%)	Yes (0.38)
2	Intermittent manual pulse rate (palpation)	8 (20%)	1 (3%)	31 (77%)	Yes (0.19)
3	Continuous pulse oximetry	11 (28%)	3 (7%)	26 (65%)	Yes (0.42)
4	Intermittent pulse oximetry	6 (15%)	0	34 (85%)	Yes (0.32)
5	Continuous invasive blood pressure monitoring	31 (78%)	4 (10%)	5 (12%)	Yes (0.07)
6	Intermittent blood pressure monitoring (either non-invasive electronic or manual device)	0	2 (5%)	38 (95%)	No (0.01)
7	Continuous Central Venous Pressure monitoring	34 (85%)	2 (5%)	6 (15%)	Yes (0.75)
8	Intermittent Central Venous Pressure monitoring (using a fluid column)	33 (83%)	4 (10%)	3 (7%)	Yes (0.53)
9	Intermittent observed respiratory rate	3 (7%)	1 (3%)	36 (90%)	Yes (0.74)
10	Intermittent capillary refill time (manually assessed)	3 (7%)	1 (3%)	36 (90%)	Yes (0.91)
11	Continuous urine monitoring (Indwelling catheter with hourly measures)	14 (35%)	1 (3%)	25 (62%)	Yes (0.63)
12	Intermittent urine monitoring (Patient voids with urinal)	12 (30%)	5 (12%)	23 (58%)	Yes (0.26)
13	Neurological assessment (e.g., AVPU, GCS scales)	2 (5%)	1 (3%)	37 (92%)	Yes (0.74)
14	White blood cell count	4 (10%)	4 (10%)	32 (80%)	Yes (0.37)
15	C-reactive protein	20 (50%)	3 (7%)	17 (43%)	Yes (0.94)
16	Blood sugar level	4 (10%)	2 (5%)	34 (85%)	Yes (0.45)
17	Blood lactate	12 (30%)	3 (7%)	25 (63%)	Yes (0.98)
18	Arterial blood gases	17 (43%)	4 (10%)	19 (47%)	Yes (0.56)
19	Access to basic medical imaging (X-ray or ultrasound)	3 (7%)	4 (10%)	33 (83%)	Yes (0.56)
20	Staff experience/trained in acute care	2 (5%)	5 (12%)	33 (83%)	Yes (0.58)
21	Documented process/tool to escalate care due to the risk of, or actual, clinical deterioration	4 (10%)	2 (5%)	34 (85%)	Yes (0.77)
22	Clinical supervision by appropriately experienced staff on site or immediately available	4 (10%)	4 (10%)	32 (80%)	Yes (0.92)
23	Access to source-control/surgery	6 (15%)	2 (5%)	32 (80%)	Yes (0.87)
24	Access to clinical support by phone or telemedicine when onsite expertise advice is not available	2 (5%)	2 (5%)	36 (90%)	NA

Status	Consensus	Stability
Consensus and stability achieved	Yes; Agreement (2, 4, 9, 10, 13, 14, 16, 19–23) Disagreement (5, 7, 8)	
Consensus not achieved but stable		Yes (1, 3, 11, 12, 15, 17, 18)

5. Guidance on when to transfer an adult patient recovering from sepsis from critical care to intermediate or acute care (i.e., ICU discharge) shou...guidelines for adults in resource-limited settings.

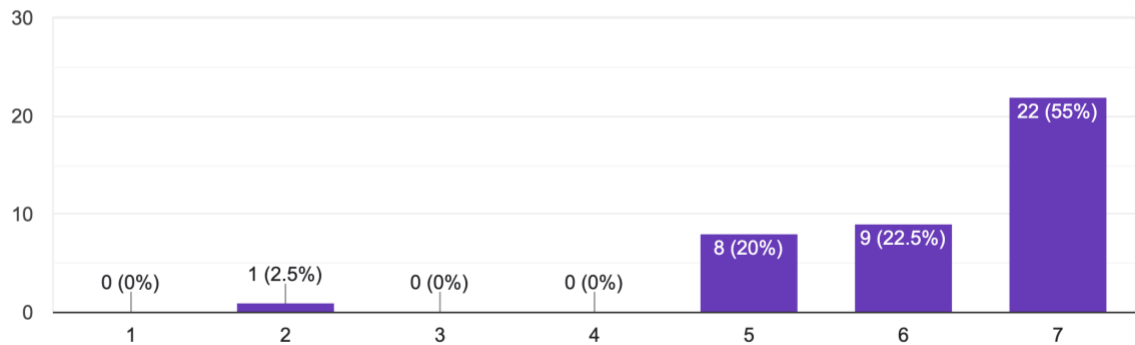
40 responses



Status	Consensus	Stability
Consensus achieved but unstable	Yes (95%)	No (0.04)

6. Remote monitoring (or tele-monitoring) may be considered to guide management of patients with sepsis in the resource-limited settings.

40 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (98%)	NA

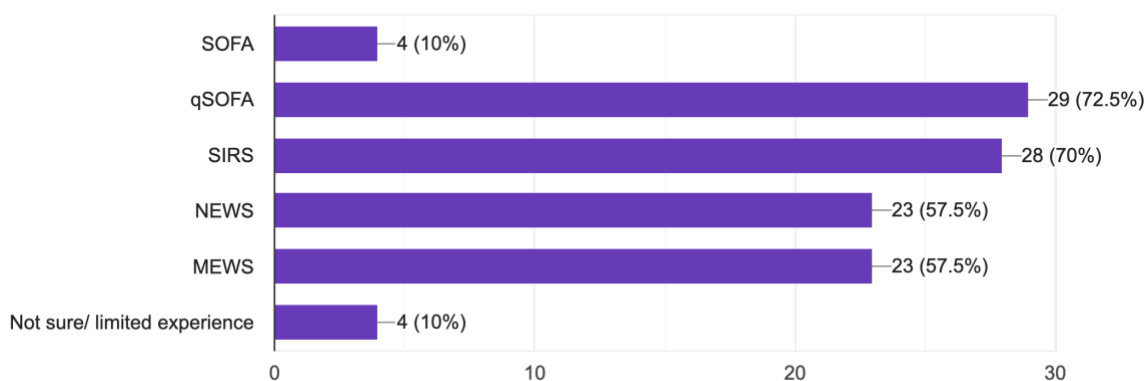
Anonymous Comments

1. Telemedicine might be a useful tool in resource-limited countries
2. Particularly in the hard-to-reach areas, where most at risk vulnerable populations live
3. Only if rapid access to consultation is provided. Only if there's no local possibility of evaluation/ management
4. As an additional tool of monitoring may be considered.

Domain 4: Diagnostic considerations for sepsis in adults with suspected or proven infection in resource-limited settings.

1. In your experience, which of the following are feasible for the screening of sepsis in most resource-limited settings?

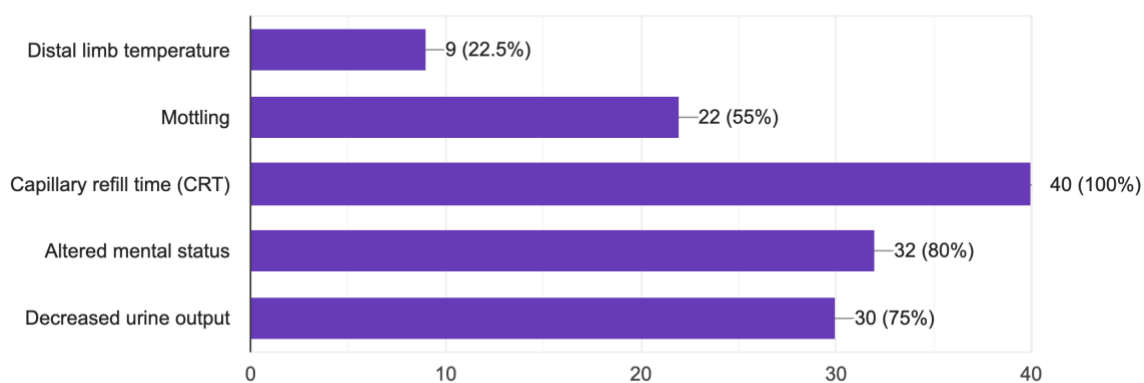
40 responses



Status	Consensus	Stability
Consensus not achieved, but stable	No	Yes (0.74)

2. In the absence of serum lactate, which of the following clinical parameters alone or in combination are just as useful as lactate in assessing tissue hypoperfusion?

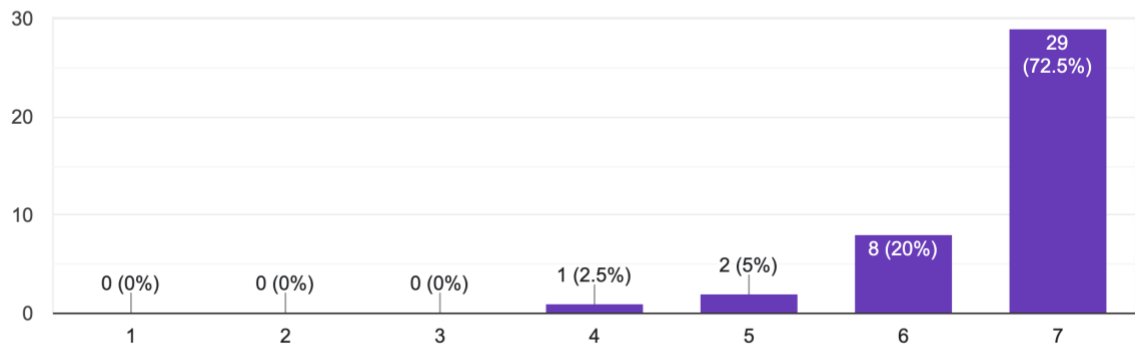
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (Option 3, 4)	Yes (0.62)

3. Urine output should be monitored in all adult patients with sepsis in resource-limited settings.

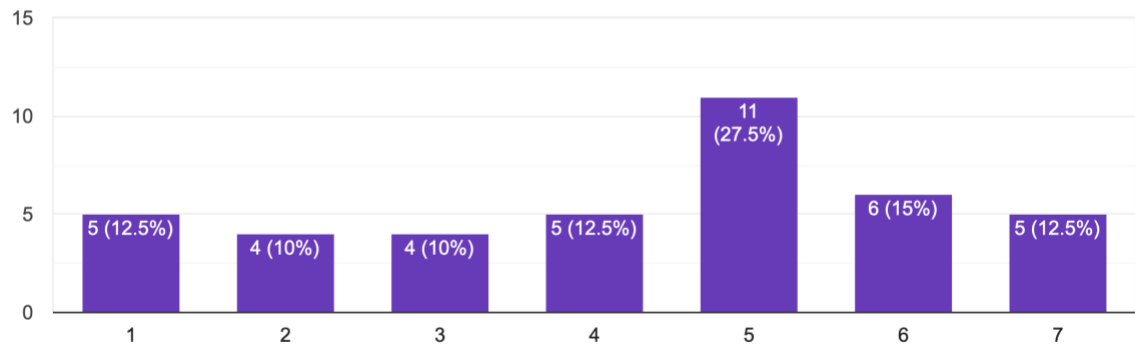
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (98%)	Yes (0.1)

4. Urine output should be monitored in all adult patients with sepsis in resource-limited settings using an indwelling urinary catheter.

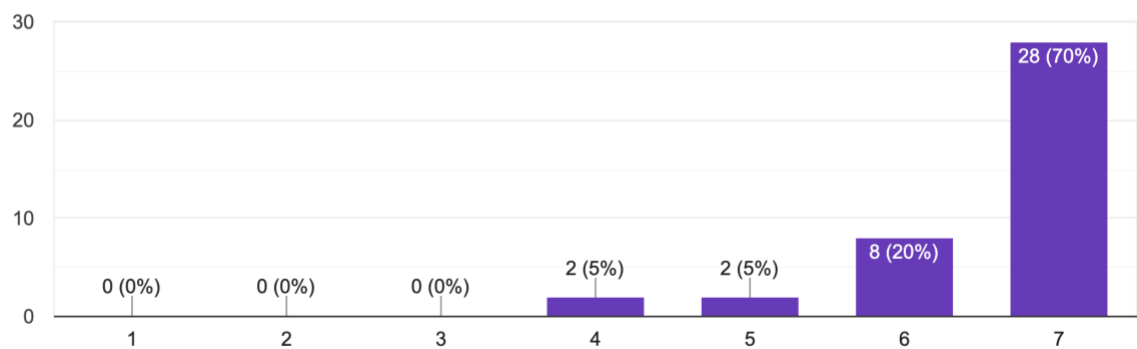
40 responses



Status	Consensus	Stability
Consensus not achieved, but stable	No	Yes (0.85)

5. Urine output should be monitored in all adult patients with septic shock in resource-limited settings using an indwelling urinary catheter.

40 responses

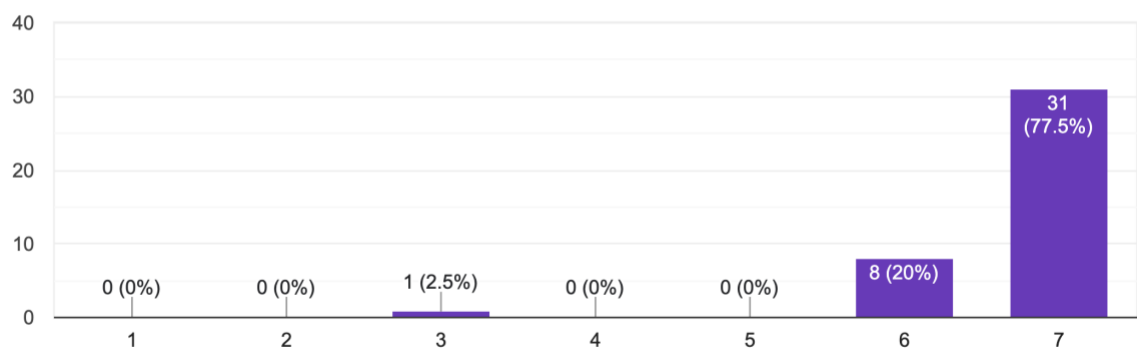


Status	Consensus	Stability
Consensus and stability achieved	Yes (95%)	Yes (0.20)

Domain 5: Clinical management of adults with sepsis in resource-limited settings

1. Clinical parameters such as capillary refill time and urine output may be used in to guide resuscitation, if lactate is not available.

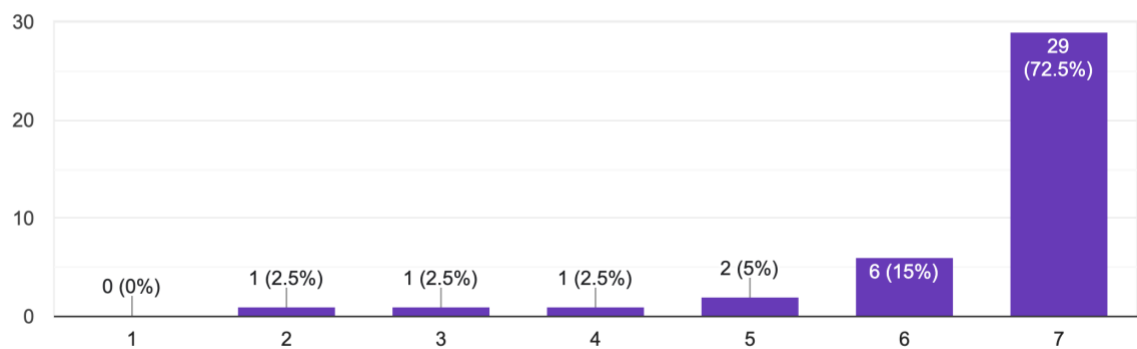
40 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (98%)	NA

2. For adults with possible sepsis without shock, where investigations (such as laboratory or imaging) to exclude a non-infectious cause of acut...microbials should be administered without delay.

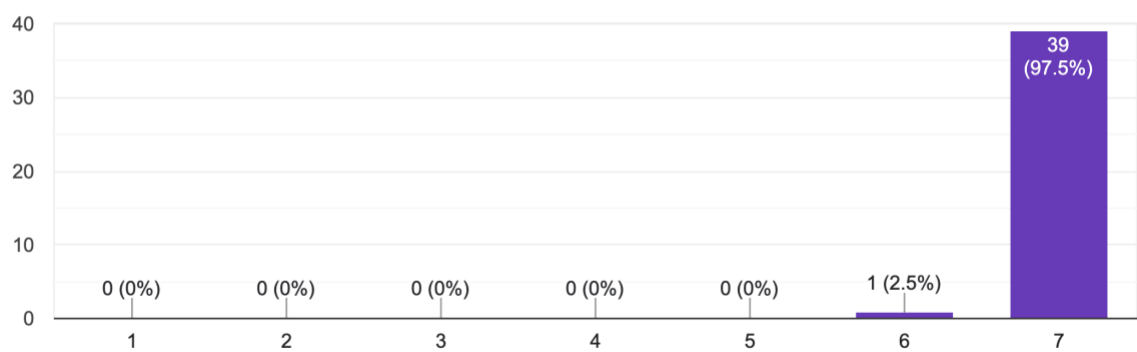
40 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (93%)	NA

3. In the resource-limited settings, for adults with a high likelihood for sepsis or with septic shock, antimicrobials should be administered immedi... ideally within one hour of recognition of sepsis.

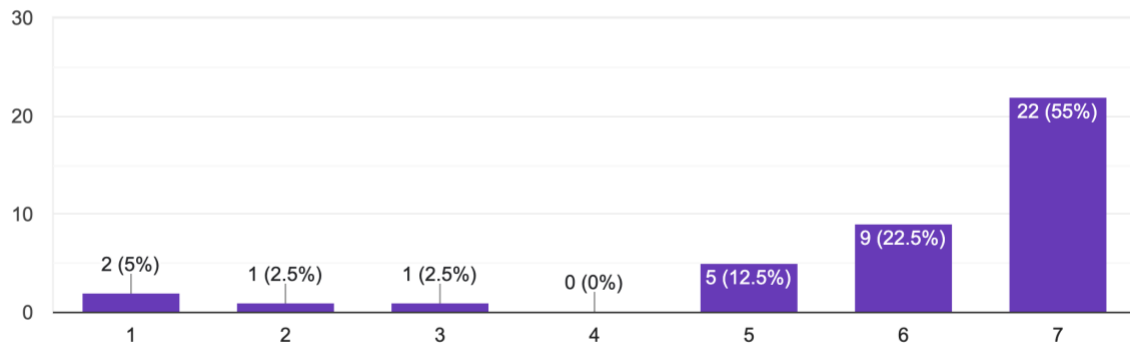
40 responses



Status	Consensus	Stability
Consensus achieved but unstable	Yes (100%)	No (0.03)

4. In areas of high risk for parasitic infection, an empirical anti-parasitic agent (e.g., anti-malarial) should be administered without delay to patients with suspected sepsis of parasitic origin.

40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (90%)	Yes (0.08)

5. For adults with an initial diagnosis of sepsis or septic shock and adequate source control where optimal duration of antibiotic therapy is unclear, the following indicators, **if available, are acceptable** to guide cessation of antibiotic therapy by:

	Statement	Disagree	Neutral	Agree	Stability
1	Clinical improvement alone	8 (20%)	2 (5%)	30 (75%)	Yes (0.06)
2	Clinical improvement plus trend in C - reactive protein (CRP)	4 (10%)	6 (15%)	30 (75%)	Yes (0.08)
3	Clinical improvement plus trend in white blood cell (WBC) count	2 (5%)	6 (15%)	32 (80%)	Yes (0.08)
4	Clinical improvement plus trend in procalcitonin	9 (22%)	3 (8%)	28 (70%)	Yes (0.39)

Status	Consensus	Stability
Consensus and stability achieved	Yes (Statement: 1–4)	Yes (1-4)

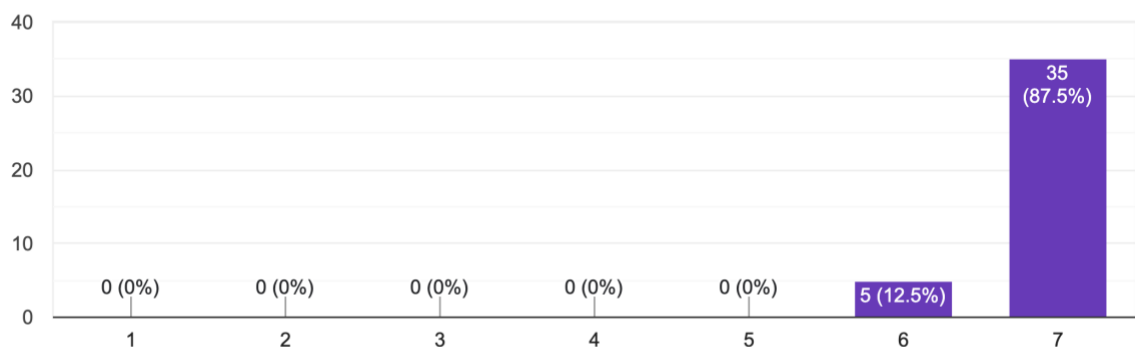
6. When the facilities for hemodynamic monitoring are limited, the following may be used to guide fluid therapy?

	Statement	Disagree	Neutral	Agree	Stability
1	Fluid challenge	3 (8%)	0	37 (92%)	Yes (0.05)
2	Central venous pressure	22 (55%)	4 (10%)	14 (35%)	Yes (0.25)
3	Plethysmographic indices for fluid responsiveness	11 (27%)	8 (20%)	21 (53%)	Yes (0.68)
4	Pulse pressure variation (PPV) and Tidal Volume Challenge (both require an invasive arterial line)	12 (30%)	2 (5%)	26 (65%)	NA
5	Passive leg raising (used with pulse pressure or PPV)	5 (12%)	3 (8%)	32 (80%)	Yes (0.72)
6	Ultrasonography	5 (12%)	1 (3%)	34 (85%)	Yes (0.74)

Status	Consensus	Stability
Consensus and stability achieved	Yes (Statements: 1, 5, 6)	
Consensus not achieved but stable		Yes (Statements: 2, 3)

7. For adults with sepsis or septic shock, when a balanced salt solution is indicated in resource-limited settings, a non-proprietary balance...r's lactate, Hartmann's solution etc.) may be used.

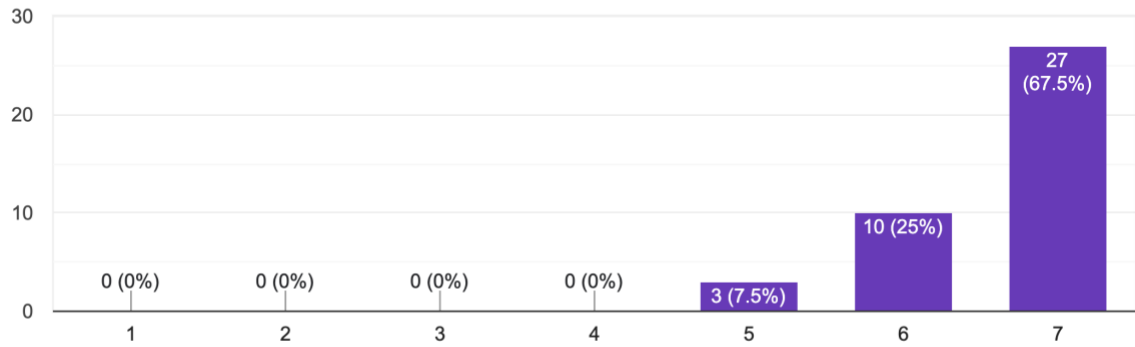
40 responses



Status	Consensus	Stability
Consensus achieved but unstable	Yes (100%)	No (0.03)

8. Special consideration may be required regarding the volume of fluid for resuscitation in sepsis or septic shock due to tropical infections.

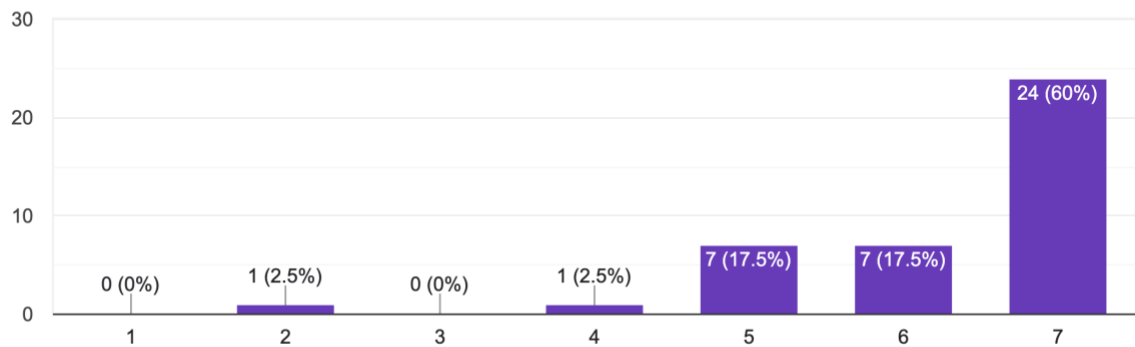
40 responses



Status	Consensus	Stability
Consensus achieved but unstable	Yes (100%)	No (0.001)

9. Epinephrine is an acceptable alternative to vasopressin (if vasopressin not available) in patients with septic shock and an inadequate mean arterial pressure response to norepinephrine.

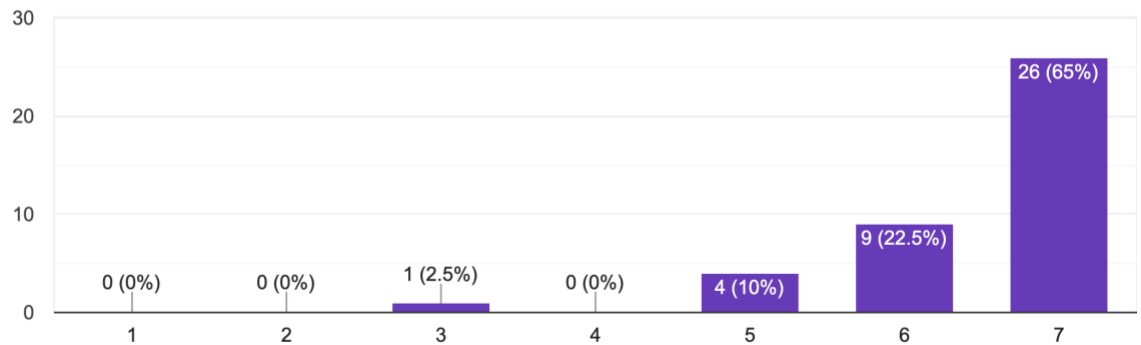
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (95%)	Yes (0.07)

10. Epinephrine is acceptable alternative to norepinephrine (if norepinephrine not available) in patients with septic shock and inadequate mean arterial pressure.

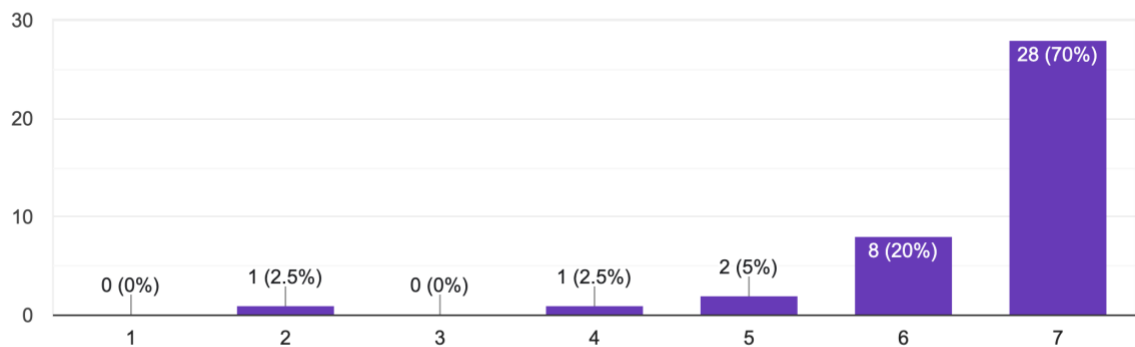
40 responses



Status	Consensus	Stability
Consensus achieved but unstable	Yes (Option: 98%)	No (0.003)

11. Vasopressors can be initiated and continued peripherally if central venous access is not available or feasible.

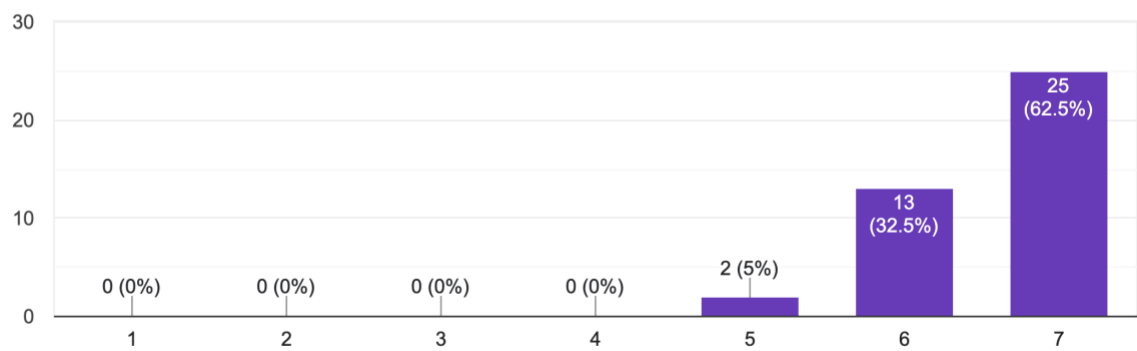
40 responses



Status	Consensus	Stability
Consensus achieved but unstable	Yes (95%)	No (0.02)

12. Non-Invasive ventilation is an acceptable alternative to high flow nasal oxygen (HFNO) if HFNO is not available for the management of acute hypoxic respiratory failure.

40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (100%)	Yes (0.06)

Any other comments related to this survey?

1. Gracious thank you for the honor, privilege and delight to participate in this excellent initiative!
2. I just wish to reiterate that it is only the person who wears the shoe that knows where it pinches! The Success of sepsis management in LMICs is dependent upon Funds/Financing. If money is pumped into Sepsis, as it was done with Cancer, HIV/AIDS, we shall be well rest assured that Sepsis would be Stopped, and Lives would be Saved!
3. We should avoid "local" guidelines, as it will lead to wide practice variation and multiple guidelines.
4. A constant concern is that the range of resources in "limited resource settings" may be very wide. Thus, it is difficult to decide what would be "standard of care" for a peripheral health care center in a remote area, vs a larger hospital in a city (but still with limited resources)
5. Consider include a suggestion for albumin transfusion in hypoalbuminemia septic patients.
6. If central line is placed for access, central venous pressure (CVP) should be measured and documented intermittently at least, and there is no harm in using the CVP trend to guide fluid boluses.
7. I have struggled with the term "acceptable" throughout the survey. If a resource is not available, then the clinician has to make do with what is available (obviously trying to optimize the situation as far as possible). If a resource is essential to the appropriate care of a patient (and it is possible to reasonably access that resource), then healthcare managers and policy-makers should be told that failure to provide that resource is unacceptable. Is there not the possibility of stating that a certain course of action is ideal; other courses of action may be less than ideal, but would be reasonable clinical approaches if the ideal option is not available / possible?

Expert Consensus Statements on the Management of Sepsis in the Resource-limited Settings

Round Three Survey Report

The Round three survey was created on a ‘Google Forms’ platform. The survey went live on July 18, 2023, with a window of 11 days for responses until July 29, 2023, at 8 AM (GMT). This survey was sent to 40 distinguished experts and all (100%) completed the survey in the stipulated time frame. There were 16 questions in the survey, with 13 ordinal Likert scale-based qualitative statements and 3 multiple-choice questions (MCQ) based on qualitative options. A detailed report of the results of each question is presented below for your perusal. Minor edits have been made in the comments received to maintain the anonymity of the Experts. The steering committee has created a Round Four questionnaire based on this report.

The steering committee, following extensive discussion, has made the following changes in the questionnaire, based on the responses and comments in round three:

One questions have been rephrased to avoid any ambiguity

Consensus	≥ 70% in favor of agree/disagree, or ≥80% in favor of single option in MCQ	Analyze for stability
Stability	Chi-square or Kruskal-Wallis test for analysis, p-value <0.05 is significant (not applicable for round 1)	To analyze and aim for stable consensus or dissensus. If stable, the question is dropped from the next round.

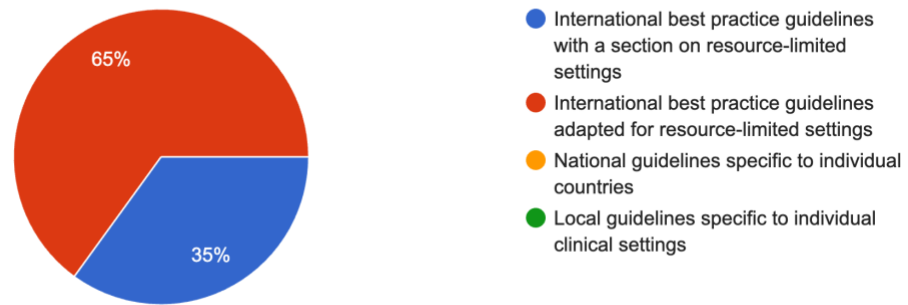
Consensus Matrix

Round	1						2						3					
Sections	5						5						5					
Question	3+4+5+5+12 =29 (22 Likert + 7 MCQ)					Total	3+5+6+5+12 =31 (23 Likert + 8 MCQ)					Total	2+2+3+1+8 =16 (13 Likert + 3 MCQ)					Total
Comment	220						24						6					
Sections	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5	
Total questions	3	4	5	5	12	29	3	5	6	5	12	31	2	2	3	1	8	16
Consensus	2	4	5	3	12	26 (90%)	3	5	6	3	12	29 (94%)	1	2	3	1	8	15 (94%)
Question dropped	N A	N A	N A	N A	N A		0	0	0	0	0	0	0	0	0	0	0	0
Question added	N A	N A	N A	N A	N A		0	1	1	0	0	2	0	0	0	0	1	1
Question changed	N A	N A	N A	N A	N A		0	0	1	0	2	3	0	0	0	1	0	1
Options changed	N A	N A	N A	N A	N A		2	0	0	0	2	0	0	0	0	0	0	0
Stability checked	N A	N A	N A	N A	N A		2	4	5	5	10	26	2	2	3	0	7	14
Stability achieved	N A	N A	N A	N A	N A		2	3	4	5	5	19 (73%)	2	2	3	0	7	14 (100%)

Domain 1: Need for additional clinical guidance for managing adult sepsis in resource-limited settings.

1. Guidelines for managing adults with sepsis in resource-limited settings should ideally be:

40 responses



Status	Consensus	Stability
Consensus not achieved but stable	No	Yes (0.08)

2. What elements should be included in guidelines for managing adults with sepsis in resource-limited settings?

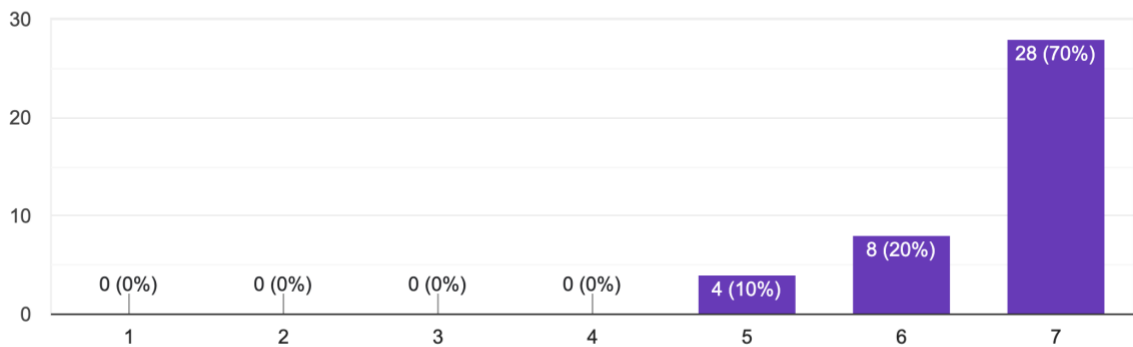
	Statement	Not-important	Neutral	Important	Stability
1	Locally tailored strategies to support recovery	1 (3%)	4 (10%)	35 (87%)	Yes (0.13)
2	Triage strategies to facilitate optimal use of resources for adults with sepsis when ICU beds are limited	0	3 (7%)	37 (93%)	Yes (0.05)

Status	Consensus	Stability
Consensus and stability achieved	Yes (statements: 1, 2)	Yes

Domain 2: Need for additional clinical guidance on differences in population characteristics and disease type for managing adult sepsis in resource-limited settings.

1. Clinical guidance for managing adult sepsis should address different population characteristics relevant to resource-limited settings.

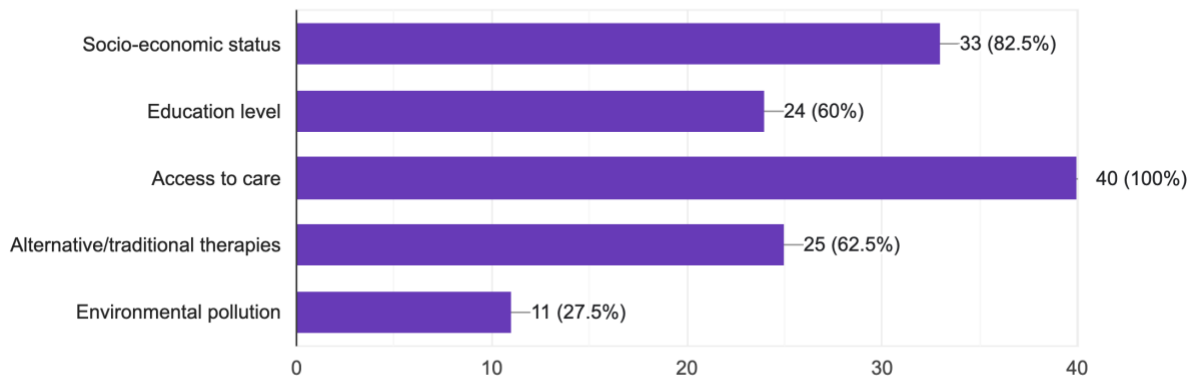
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (100%)	No (0.89)

2. What social and environmental characteristics may be different from high-income settings and should be considered in managing adult sepsis in resource-limited settings?

40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (Options 1, 3)	Yes (0.85)

Domain 3: Timing and locations for managing adult sepsis in resource-limited settings

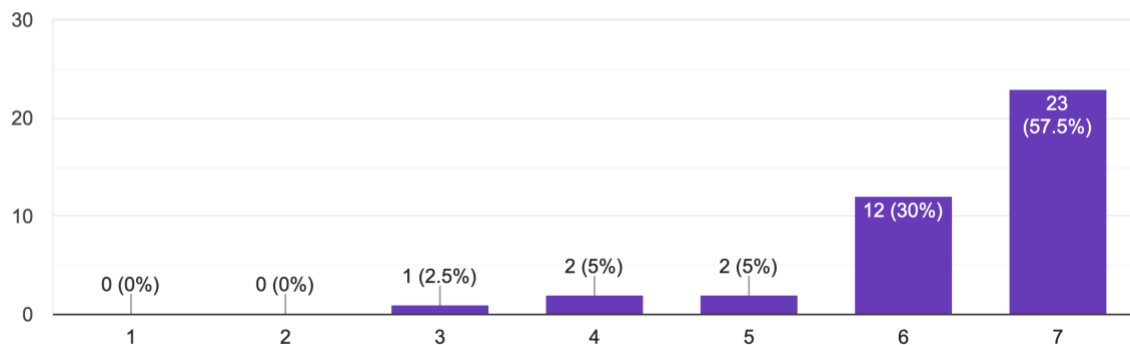
1. For adult patient with acute sepsis (**non-ventilated**) managed outside a designated critical care area in a resource-limited setting which of the following physiological monitoring, treatment and resources in your opinion is required as **minimum standard of care** to ensure safe and effective care?

	Statement	Disagree	Neutral	Agree	Stability
1	Intermittent blood pressure monitoring (either non-invasive electronic or manual device)	0	2 (5%)	38 (95%)	Yes (1)
2	Access to clinical support by phone or telemedicine when onsite expertise is not available	1 (3%)	3 (7%)	36 (90%)	Yes (0.76)

Status	Consensus	Stability
Consensus and stability achieved	Yes; Agreement (1, 2)	Yes

2. Guidance on when to transfer an adult patient recovering from sepsis from critical care to intermediate or acute care (i.e., ICU discharge) should be included in guidelines for adults in resource-limited settings.

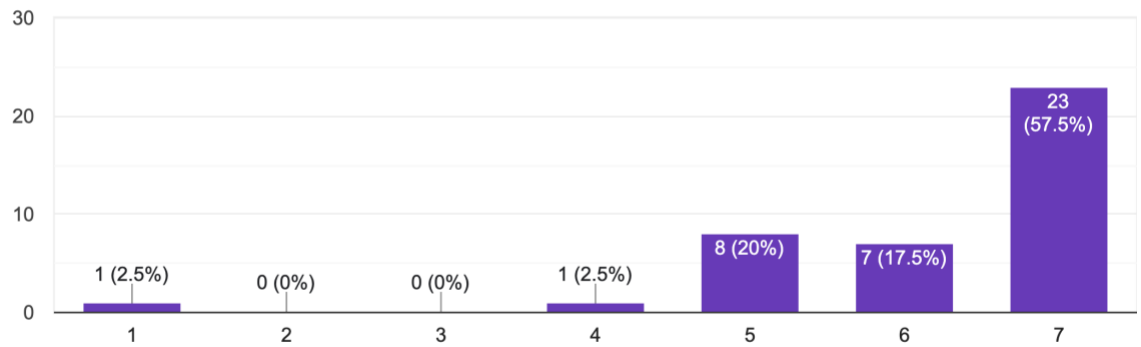
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (93%)	No (0.55)

3. Remote monitoring (or tele-monitoring) may be considered to guide management of patients with sepsis in the resource-limited settings.

40 responses

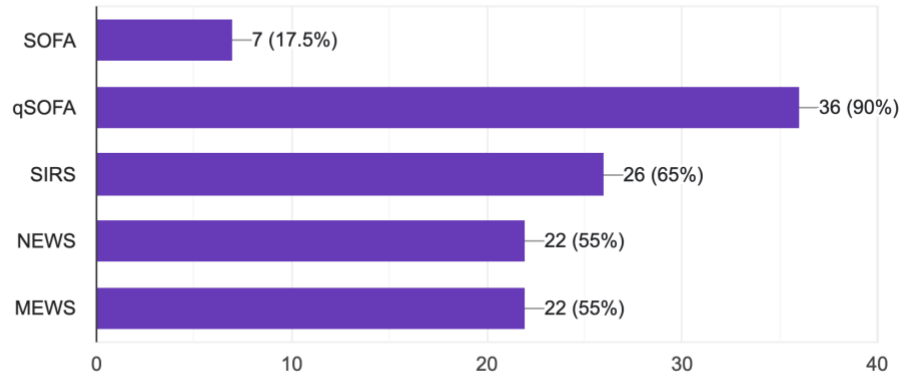


Status	Consensus	Stability
Consensus and stability achieved	Yes (95%)	Yes (0.90)

Domain 4: Diagnostic considerations for sepsis in adults with suspected or proven infection in resource-limited settings.

1. In your experience, which of the following scores are doable in resource-limited settings?

40 responses

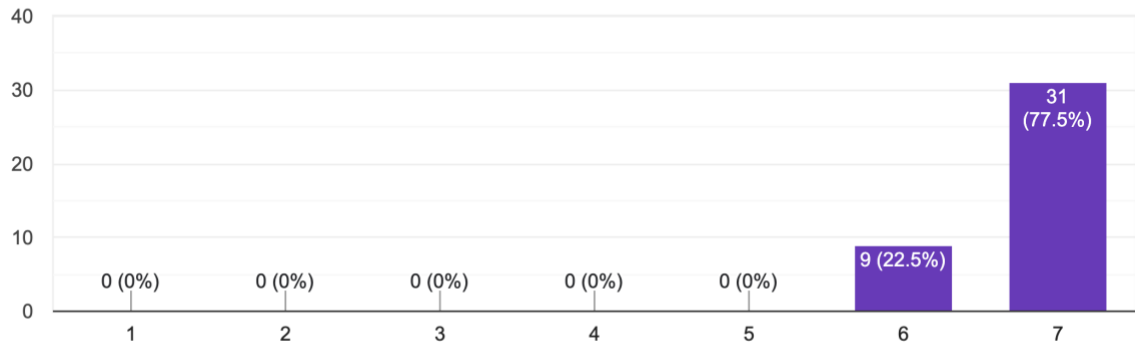


Status	Consensus	Stability
Consensus achieved, but stability not checked	Yes (Option 2)	NA

Domain 5: Clinical management of adults with sepsis in resource-limited settings

1. Clinical parameters such as capillary refill time and urine output may be used in to guide resuscitation, if lactate is not available.

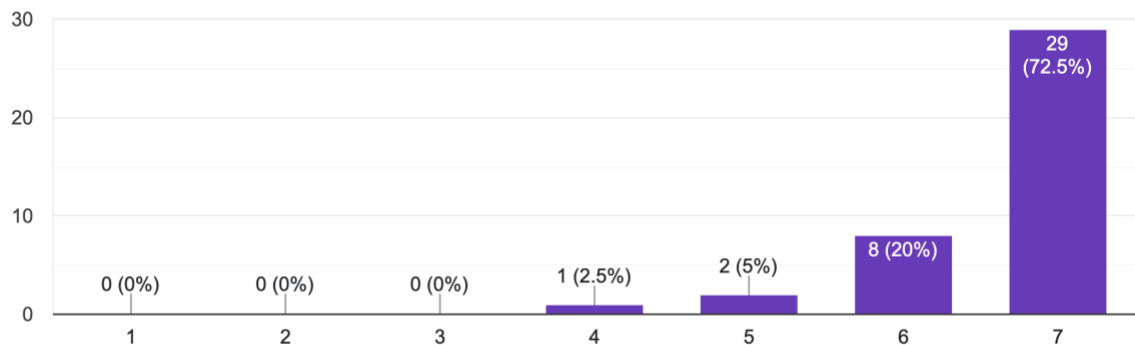
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (100%)	Yes (0.89)

2. For adults with possible sepsis without shock, **where investigations (such as laboratory or imaging) to exclude a non-infectious cause of acute illness are not readily available and if concern for infection persists**, antimicrobials should be administered without delay.

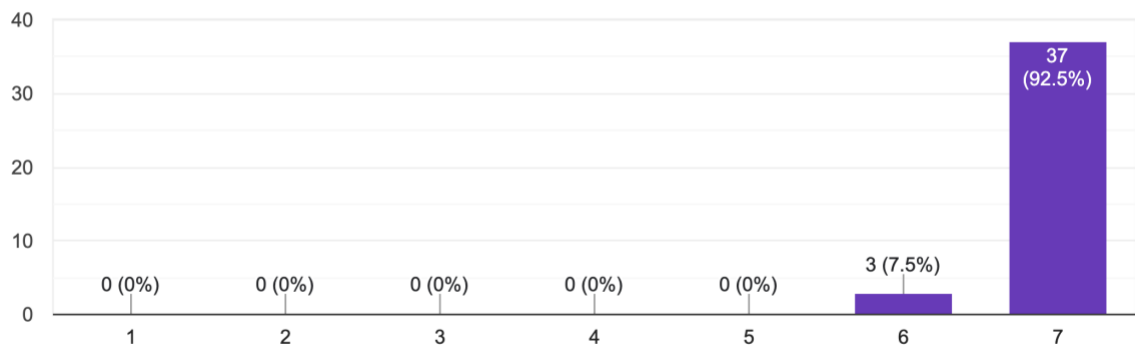
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (97%)	Yes (0.89)

3. In the resource-limited settings, for adults with a high likelihood for sepsis or with septic shock, antimicrobials should be administered immediately, ideally within one hour of recognition of sepsis.

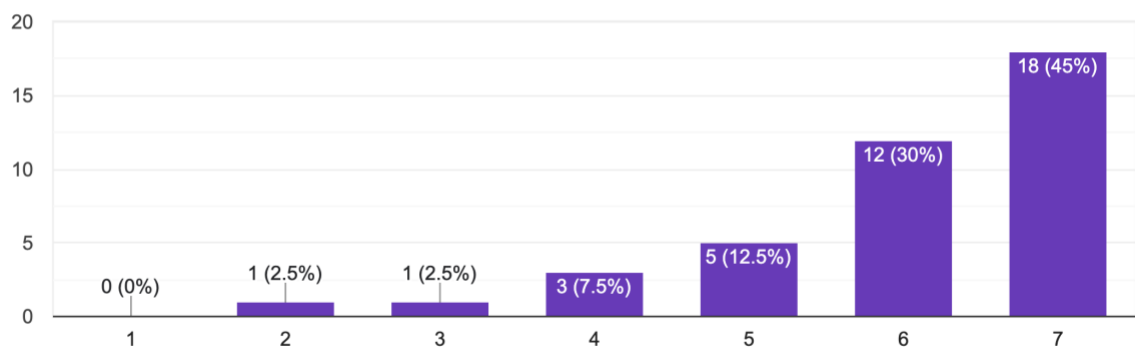
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (100%)	Yes (0.70)

4. When facilities for advanced hemodynamic monitoring are unavailable, tests using an arterial line (e.g Pulse Pressure Variation and Tidal-Volume Challenge) may be used to guide fluid therapy.

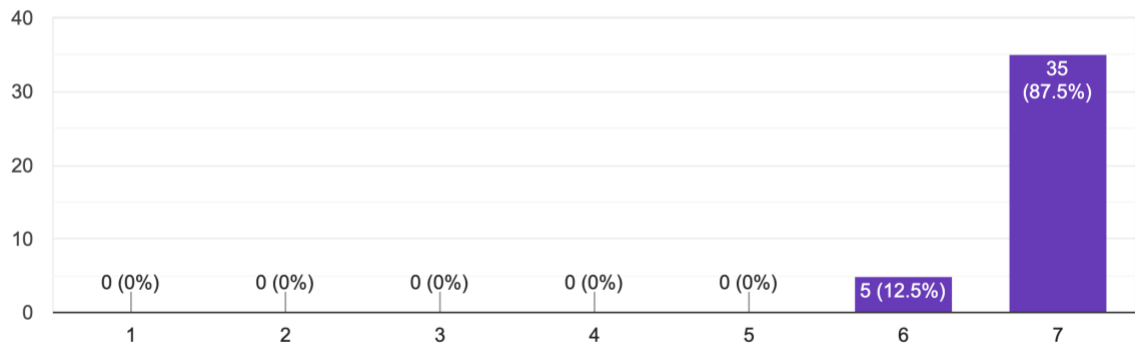
40 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (88%)	NA

5. For adults with sepsis or septic shock, when a balanced salt solution is indicated in resource-limited settings, a non-proprietary balanced salt solution (e.g., Ringer's lactate, Hartmann's solution etc.) may be used.

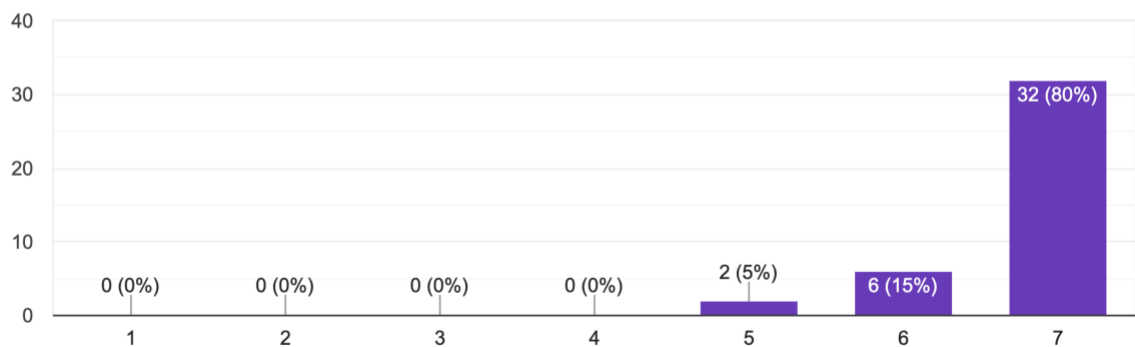
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (100%)	Yes (1.0)

6. Special consideration may be required regarding the volume of fluid for resuscitation in sepsis or septic shock due to tropical infections.

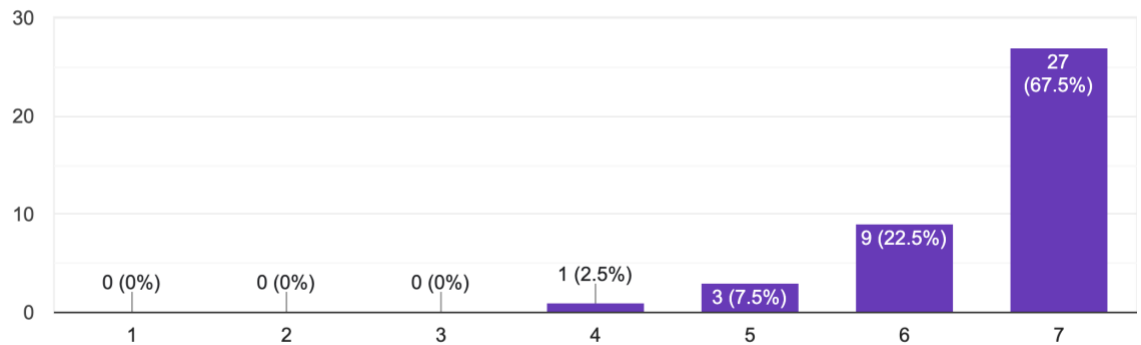
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (100%)	Yes (0.34)

7. Epinephrine is acceptable alternative to norepinephrine (if norepinephrine not available) in patients with septic shock and inadequate mean arterial pressure.

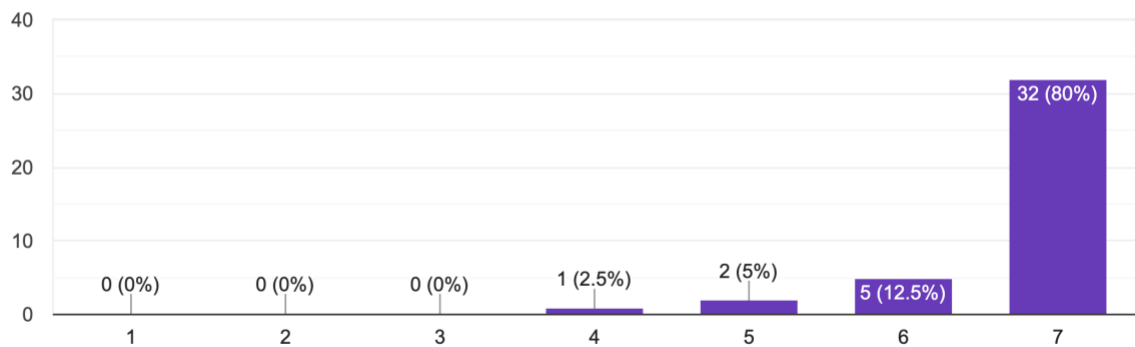
40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (Option: 98%)	Yes (0.41)

8. Vasopressors can be initiated and continued peripherally if central venous access is not available or feasible.

40 responses



Status	Consensus	Stability
Consensus and stability achieved	Yes (98%)	Yes (0.44)

Any other comments related to this survey?

1. In question #11 need to define "peripherally" as to gauge of iv and vessel. for example, I would not consider 22 gauge in the hand but a 18-20 gauge antecubital would be acceptable.
2. Modified SOFA (MSOFA) is a great tool for sepsis recognition for resource limited setting. It consists of 4 clinical parameters and 1 blood test (which also may replace with urine output). Its sensitivity and specificity are equivalent to SOFA score.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3811929/>
3. 1) Provided A-line is available in the absence of advanced hemodynamic monitoring, it should definitely be used to guide fluid therapy. However, it may not be available in resource-limited settings. 2) If norepinephrine is not available, in most resource limited settings, dopamine is usually used because it is readily available, easier to titrate using burettes instead of syringe pumps and clinicians are more familiar with its use in the wards settings rather than epinephrine that should be given through a syringe pump that are only available in ICU setting. If dopamine is not available no choice is left but to use epinephrine. The objective of this question is not very clear? Is the objective to recommend epinephrine use before dopamine use? Or is the objective that use of epinephrine is ok in septic shock?
4. About telemedicine: should be implemented only for remote areas with accessibility problems. A 24/7 team should be available, for daily follow up and in case of emergencies or clinical instability. This type of assistance should be provided by experts and be consistent over time. Otherwise, I'm not sure if it is helpful for patients
5. D1Q2: Question 1 is vague--'for recovery' can refer to any part of patient care. Is these questions meant to be specific towards convalescing patients who have recovered from the acute emergent phase of their illness?
 - a. D2Q1: Phrasing of this questions is too vague. What population characteristics relevant to resource-limited settings should we consider here?
 - b. D2Q2: The social and economic characteristics are overlapping in nature and don't really reflect unique aspects of resource limited settings in LMICs vs resource limited settings anywhere. Other factors like exposures (beyond environmental pollution) which might influence what sepsis-causing pathogens are included in a differential diagnosis could be considered. In addition, factors like number of people living under the same roof; access to safe drinking water; occupation; care-seeking journey and self-treatment (to give insight to extend of presentation delays) would be more meaningful in terms of informing sepsis management of patients from resource-limited settings within LMICs.
 - c. D3Q3: There seems to be discordance between a setting that is 'resource-limited' and one where remote monitoring is available, so difficult to strongly consider this as an option though it would be nice to have.
 - d. D5Q2: The question lacks clarity. It says 'concern for infection persists' which implies there already is a delay, so it is unclear what period is implied by 'persists' or whether 'antimicrobials should be administered without delay' means beyond the period implied by 'persists' vs without delay at all (i.e., pts with suspected sepsis (without shock) in settings where lab/radiologic testing not possible should get antimicrobials without any delay?). I suspect that if respondents might answer differently depending on which option is being asked.

- e. D5Q4: Placing an arterial line in a resource-constrained setting and monitoring PPV would still require a high level of resource (e.g., in terms of expertise) so might still fall under the category of 'advanced hemodynamic monitoring'. D5Q7: Specify pediatric vs adult?
 - f. D5Q8: The 'and continued' phrase led to questions about extent of monitoring for adverse events (extravasation; skin necrosis; loss of access) which would need to be explicit in the question for me to more strongly agree with this statement.
6. Even with the very good refinements, there certainly still are nuances that may pertain to some of the questions. However, general principles and guidance are relevant. An excellent initiative, I've enjoyed it immensely. Commendations to all and huge thanks!

Expert Consensus Statements on the Management of Sepsis in the Resource-limited Settings

Round Four Survey Report

The Round four survey was created on a ‘Google Forms’ platform. The survey went live on August 14, 2023, with a window of 10 days for responses until August 23, 2023, at 5 pm (GMT).

This survey was sent to 40 distinguished experts and 38 (95%) completed the survey in the stipulated time frame. There were 3 questions in the survey, with 1 ordinal Likert scale-based qualitative statement and 2 multiple-choice questions based on qualitative options. A detailed report of the results of each question is presented below for your perusal. Minor edits have been made in the comments received to maintain the anonymity of the Experts.

Consensus	≥70% in favor of agree/disagree, or ≥80% in favor of single option	Analyze for stability
Stability	X ² for analysis, p-value <0.05 is significant (not applicable for round-1)	To analyze and aim for stable consensus or dissensus. If stable, the question is dropped from the next round.

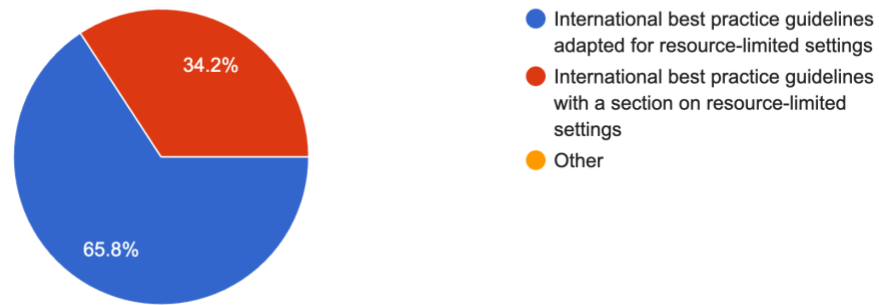
Consensus Matrix

Round	1						2						3						4			
Sections	5						5						5						3			
Question	3+4+5+5+12 =29 (22 Likert + 7 MCQ)					Total	3+5+6+5+12 =31 (23 Likert + 8 MCQ)					Total	2+2+3+1+8 =16 (13 Likert + 3 MCQ)					Total	1+1+1 (1 Likert + 2 MCQ)			Total
Comment	220						24						6						8			
Sections	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5		1	2	3	
Total questions	3	4	5	5	12	29	3	5	6	5	12	31	2	2	3	1	8	16	1	1	1	3
Consensus	2	4	5	3	12	26 (90%)	3	5	6	3	12	29 (94%)	1	2	3	1	8	15 (94%)	0	1	1	2
Question dropped	NA	NA	NA	NA	NA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Question added	NA	NA	NA	NA	NA		0	1	1	0	0	2	0	0	0	0	1	1	1	0	0	0
Question changed	NA	NA	NA	NA	NA		0	0	1	0	2	3	0	0	0	1	0	1	0	0	0	0
Options changed	NA	NA	NA	NA	NA		2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Stability checked	NA	NA	NA	NA	NA		2	4	5	5	10	26	2	2	3	0	7	14	1	1	1	3
Stability achieved	NA	NA	NA	NA	NA	-	2	3	4	5	5	19 (73%)	2	2	3	0	7	14 (100 %)	1	1	2	3 (100%)

Domain 1: Need for additional clinical guidance for managing adult sepsis in resource-limited settings.

1. Guidelines for managing adults with sepsis in resource-limited settings should ideally be:

38 responses

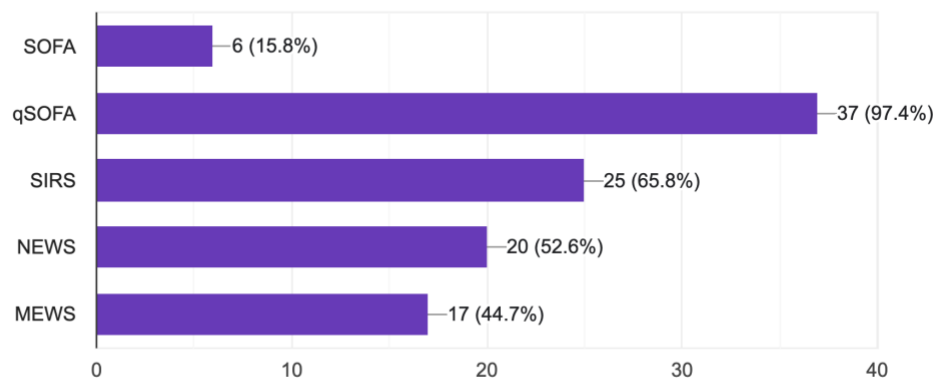


Status	Consensus	Stability
Consensus not achieved but stable	No	Yes (p=1.0)

Domain 4: Diagnostic considerations for sepsis in adults with suspected or proven infection in resource-limited settings.

1. In your experience, which of the following scores are DOABLE in resource-limited settings?

38 responses

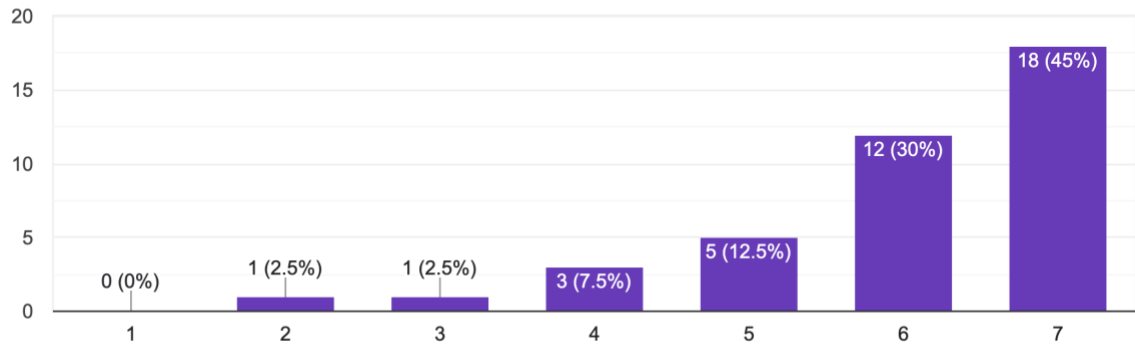


Status	Consensus	Stability
Consensus achieved, but stability not checked	Yes (Option 2)	NA (0.94)

Domain 5: Clinical management of adults with sepsis in resource-limited settings

4. When facilities for advanced hemodynamic monitoring are unavailable, tests using an arterial line (e.g Pulse Pressure Variation and Tidal-Volume Challenge) may be used to guide fluid therapy.

40 responses



Status	Consensus	Stability
Consensus achieved but stability not checked	Yes (88%)	NA (0.22)

Any other comments related to this survey?

1. Thank you for the invitation to participate. Questions were relevant and insightful.
2. If A-line monitoring is available looking at PPV on simple multi-para monitors doesn't incur extra cost and may give useful information about the fluid status
3. It is a great project and the results will be very useful for future practice.
4. In some area, pressure transducer system may not be available
5. In resource constrained settings availability of invasive arterial lines are scarce. And another issue for this measurement is the lack of knowledge of the health care provider in performing these tests.
6. Thank you so much as always for the great work and the opportunity to participate.
7. In terms of the use of qSOFA it is needed to assure that one and not only 2 qSOFA items are enough to suspect, the request for the presence of two points in this score, as initially requested in the paper by Singer et al. would be dangerous!
8. Yes, but recognizing their limitations