INTERACT Guidance on Management of Possible Sepsis

Many skilled nursing facilities (SNFs) have requested an INTERACT "Care Path" for Sepsis, because this condition has been reported to be a common cause of hospital admissions and readmissions.

The INTERACT Program currently includes 10 Care Paths for the most common symptoms and signs that present as acute changes in condition, and that often result in hospital transfer. Because of the nature of the SNF population, any one of these symptoms or signs could be associated with an infection and possible sepsis. Moreover, sepsis is difficult to diagnose in the SNF setting and published criteria for infections vary.

Guideline recommended management of sepsis is beyond the capability of most SNFs. Thus, for the majority of residents/patients suspected of possible sepsis transfer to an acute hospital should be considered to safely and optimally manage this condition.

The following guidance on the identification and management of possible sepsis is based on existing evidence, guidelines, and expert recommendations. The INTERACT Care Paths will reflect this guidance. The attached **Flow Diagram** illustrates an overview of Management of Possible Sepsis in the SNF setting.

1. Because symptoms and signs are nonspecific in older patients, especially those with multiple comorbidities and/or cognitive impairment, **virtually any acute change in condition could represent possible sepsis due to an infection.**

2. There is no evidence-based definition of possible sepsis in post-acute patients or long-term care residents. Examples of sepsis definitions are illustrated in the **Table** below.

Examples of Definitions of Sepsis

- **General Definition:**

    Sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to infection. Organ dysfunction can be identified as an acute change of 2 or more on the Sepsis Related Organ Failure Assessment.[1]

- **Definition specific to Geriatrics and Post-Acute/Long-Term Care:**

    Sepsis is an infection, regardless of the primary site of the source that manifests with select systemic symptoms, signs and/or functional capacity changes and may be associated with one or more organ dysfunction and/or failure. (Personal communication from Dr. Thomas Yoshikawa, MD, Distinguished Professor of Medicine, Geriatric Medicine and Infectious Diseases David Geffen School of Medicine, UCLA)

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3. **Identifying Sepsis in the SNF setting is challenging.** Criteria for infections in SNFs vary (see ***INTERACT Guidance on Infections***). In addition to the criteria included in the INTERACT Care Paths, examples of other criteria for notifying clinicians to possible Sepsis could include:

   a. The **"100/100/100" criteria** recommended by the Minnesota Hospital Association, which has developed tools for Sepsis in long-term care.[2,3] (see **Table**)

"100/100/100" Criteria [2,3]
- Temperature <u>above</u> 100   - Heart rate <u>above</u> 100   - Blood pressure <u>below</u> 100

   b. The **quick Sepsis Related Organ Failure Assessment (qSOFA)** has not been validated in the post-acute or long-term care setting. <u>It does not define sepsis</u>, but research has shown that patients who score 2 or 3 on the qSOFA are at higher risk of dying during hospitalization.[4] Scoring of the qSOFA are illustrated in the **Table** [5] :

qSOFA Criteria [4,5]
- Respiratory rate ≥22/minute = 1 point   - Altered mentation = 1 point   - Systolic blood pressure ≤100 mmHg = 1 point

4. **The INTERACT team recommends that all patients/residents with a suspected or confirmed infection and possible sepsis <u>be considered for transfer</u> to an acute care hospital, unless:**

   a. The patient/resident is on or placed on a comfort or palliative care plan, or is on hospice.

   b. The patient/resident or decision maker wants the condition treated, but not in the acute hospital, and understands the risks; and the facility has the capability of managing sepsis according to recommended interventions.

5. Several algorithms for the management of sepsis in SNFs are available; however, they are not consistent with each other. [3, 6, 7]

a. If sepsis is being considered and the patient/resident is not being immediately transferred to the acute hospital, the following lab tests should be added to routine blood work recommended to evaluate acute changes in condition:

    i. Blood cultures (two sets)
    ii. Lactate level
    iii. Platelet count
    iv. Coagulation tests (INR or PTT)
    v. Comprehensive metabolic panel (includes bilirubin)

6. Current guidelines for the management of sepsis are included in the **Table** [8]. Principles of antimicrobial stewardship should be adhered to when antibiotics are prescribed [9-13].
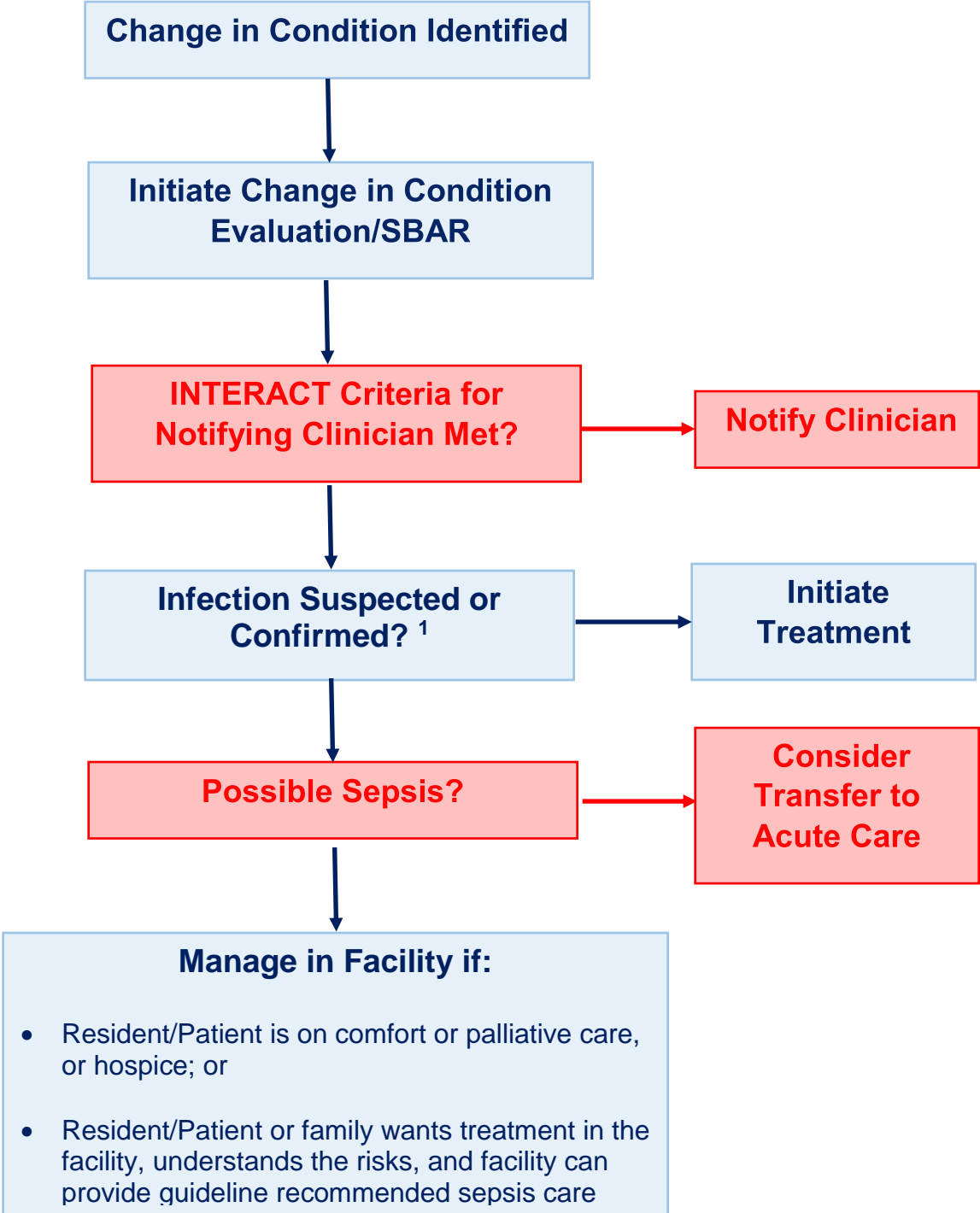

Recommendations for Management of Sepsis [8]

1. At least 30 mL/kg of IV crystalloid fluid should be given within the first 3 hours
2. Additional fluid administration should be guided by frequent reassessment of hemodynamic status.
3. Mean Arteria Pressure (MAP) and serum lactate are considered adequate indicators of tissue perfusion. These values should be maintained at (Mean Arterial Pressure (MAP) ≥65 mmHg and lactate <2 mmol/L (<18 mg/dL).
4. To estimate MAP, double the diastolic blood pressure and add the sum to the systolic blood pressure. Then divide by 3.
5. Appropriate routine microbiologic cultures (including blood) should be obtained before starting antimicrobial therapy in patients with suspected sepsis.
6. Administration of IV antimicrobials should be initiated as soon as possible, with in 1 hour after recognition of sepsis.
7. Goals of care and prognosis should be discussed with patients and families.
8. Goals of care should be incorporated into treatment and end-of-life care planning, utilizing palliative care principles where appropriate.

References

1. Singer, M, Deutschman, CS, Seymour, CW, et al. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). JAMA 2016; 315: 801-810.

2. http://www.mnhospitals.org/quality-patient-safety/quality-patient-safety-initiatives/sepsis-and-septic-shock#/videos/list (accessed October 13, 2017)

3. https://www.mnhospitals.org/Portals/0/Documents/ptsafety/SeeingSepsisLTC/1.%20Seeing%20Sepsis%20-%20LTC%20Poster.pdf (accessed October 13, 2017)

4. Freund Y, Lemachatti N, Krastinova E, et al. Prognostic Accuracy of Sepsis-3 Criteria for In-Hospital Mortality Among Patients With Suspected Infection Presenting to the Emergency Department. *JAMA 2017; 317:301-308.*

5. http://www.qsofa.org/index.php (accessed September 24, 2017)

6. http://atlanticquality.org/download/AQIN_Nursing_Facility_Sepsis_Care_Pathway.pdf (accessed September 24, 2017)

7. http://www.shmabstracts.com/abstract/pathway-for-early-sepsis-identification-and-treatment-in-the-skilled-nursing-facility/ (accessed September 24, 2017)

8. Rhodes A, Evans LE, Alhazzani W, et al. Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016. *Crit Care Med 2017; 45:486-552.*

9. https://www.ahrq.gov/nhguide/index.html (accessed September 24, 2017)

10. https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html (accessed September 24, 2017)

11. https://nursinghomeinfections.unc.edu/ (accessed October 13, 2017)

12. Zarowitz, FJ, Allen, C, Tangalos, E, and Ouslander, JG. Algorithms Promoting Antimicrobial Stewardship in Long-Term Care. J Amer Med Dir Assn 2016; 17: 173-178.

13. Jump, RLP, Gaur, S, Katz, MJ et al. Template for an Antibiotic Stewardship Policy for Post-Acute and Long-Term Care Settings. J Amer Med Dir Assn 2017; 18:913-920.

Management of Possible Sepsis

Change in Condition Identified

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Initiate Change in Condition Evaluation/SBAR

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INTERACT Criteria for Notifying Clinician Met? → **Notify Clinician**

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Infection Suspected or Confirmed? [1] → **Initiate Treatment**

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Possible Sepsis? → **Consider Transfer to Acute Care**

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Manage in Facility if:

- Resident/Patient is on comfort or palliative care, or hospice; or

- Resident/Patient or family wants treatment in the facility, understands the risks, and facility can provide guideline recommended sepsis care

[1] Refer to *INTERACT Guidance on Infections*