




McGeer Criteria: An Update

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[Stone ND et al. ICHE 2012;33:965-977.](#)

The APIC ANYWHERE logo is located at the bottom left of the slide. It consists of a blue stylized 'A' with a globe, followed by the text 'APIC ANYWHERE' in blue and 'ONLINE EDUCATION CENTER' in smaller black text below it.

McGeer Criteria Background

- Consensus discussions
- Multidisciplinary team
- Unstructured literature review
- Based on NNIS definitions

McGeer A et al. AJIC 1991; 19:1-7.



McGeer Criteria Target Population

- Older Adults
- Skilled nursing care
- Assistance activities daily living (ADLs)
- Supervision – cognitively impaired
- Therapeutic options (IVs) limited
- Onsite diagnostics uncommon

McGeer A et al. AJIC 1991; 19:1-7.



Why Revise, Why Now? Rationale

- Increase evidence-based literature
- Improved diagnostics for surveillance
- Changing pt populations in this setting
- Updated NHSN hospital definitions.
- HICPAC method/structured review done
- Grading not performed



LTCF Criteria Guiding Principles

- Infection surveillance only
- Highly specific
- Applied retrospectively
- Focus on transmissible/preventable inf.
 - Not for case finding
 - Not for diagnostic purposes
 - Not for clinical decision making



LTCF Surveillance Definitions All Conditions Must Be Met

- All symptoms must be new or acutely worse
- Alternative non-infectious causes of signs and symptoms should be considered first
- No infection can be based on a single piece of evidence
- Dx by a physician insufficient



LTCF Surveillance Programs What to Include?

Points to consider	Infections	Comments
A. Infections which should not be routinely included in surveillance		
Limited 1. Transmissibility 2. Preventability	Ear, sinus, oral infections, fungal or viral (herpetic) skin infections	Rarely transmitted Associated co-morbid conditions
At Risk Populations	Post-op, CLABSI, VAP	NHSN definitions
B. Infections that should be routinely included in surveillance		
1. Transmission evident 2. Prevention possible	ILI, <i>C. difficile</i> , viral gastroenteritis & conjunctivitis	Associated outbreaks in patients & HCW
3. Significant clinically	LRTI, UTI, SSTIs, pressure ulcers	Associated morbidity & hospitalizations
4. Serious outbreaks	Gr A Strep, scabies, flu, viral hepatitis, norovirus	Rare, highly contagious



Surveillance in LTCF Revised Signs and Symptoms

A. Fever

1. Oral single $> 37.8^{\circ}\text{C}$ [$>100^{\circ}\text{F}$] or
2. Oral repeated $> 37.2^{\circ}\text{C}$ [99°F] or
3. Any site* $> 1.1^{\circ}\text{C}$ (2°F) over baseline

B. Leukocytosis (New!)

1. Leukocytosis $> 14,000$ wbc/mm³ or
2. Left shift ($>6\%$ bands or ≥ 1500 bands/mm³)

High K et al. *Clin Infect Dis* 2009;48:149-171



Surveillance in LTCF Proposed New Signs and Symptoms

C. Confusion Assessment Method - MS change from baseline

1. acute onset and fluctuating course
2. inattention **AND**
3. Either disorganized thought or altered level of consciousness

D. Acute functional decline

1. New 3 point increase in total ADL score
 - a. 0-4 points per activity
 - b. 0-28 points per total score
2. Activities
bed mobility, transfers, locomotion, dressing, eating
toileting, personal hygiene



Inouye SK et al. *Ann Intern Med* 1990;113:941,
Minimum Data Set 3.0

Question 1

- What are statements meet constitutional criteria?
 1. The resident must have a temperature > 101° F
 2. The resident doesn't seem to be herself today
 3. She hasn't been ambulatory for 3 months
 4. None of the above



Revised McGeer Criteria Definitions Not Changed

Limited evidence to change definitions for:

- Conjunctivitis
- Ear Infections
- Sinusitis
- Cold syndromes/pharyngitis
- Cellulitis
- Gastroenteritis
- Systemic infections
- Unexplained febrile episode



Influenza-Like Illness Proposed Revised Definition

Both of the following criteria must be met:

1. Fever
2. Three or more new or increasing signs or sx
 - a) chills
 - b) headache or eye pain
 - c) myalgias
 - d) malaise or anorexia
 - e) sore throat
 - f) dry cough

Removed stipulation that Dx can only be made during flu season



Pneumonia Proposed Revised Definition

All of the following criteria must be met:

1. CXR positive for:
 - a) pneumonia or new infiltrate
2. One or more resp S/S
 - a) cough new/increased
 - b) sputum new/increased
 - c) O₂ sat < 94% or reduced 3% from baseline
 - d) abnl lung exam new or changed
 - e) pleuritic chest pain
 - f) RR > 25 breaths/min
3. One or more constitutional S/S

Absence of other conditions such as CHF that could account for symptoms

Lim WS et al. Eur Respir J 2001;18:362-368.



LRTI (Bronchitis, Tracheitis) Proposed Revised Definition

All of the following criteria must be met:

1. CXR **not done or negative** for:
 - a) pneumonia or new infiltrate
2. **Two or more** resp S/S
 - a) cough new/increased
 - b) sputum new/increased
 - c) O₂ sat < 94% or reduced 3% from baseline
 - d) abnl lung exam new or changed
 - e) pleuritic chest pain
 - f) RR > 25 breaths/min
3. **One** constitutional S/S

Absence of other conditions such as CHF that could account for symptoms



Question 2

- What statements meet criteria for ILI o respiratory tract infection?
 1. Influenza can be diagnosed any time
 2. Pneumonia requires an abnormal CXR
 3. Pneumonia and LRTI criteria cannot be met if other conditions are present that can account for findings
 4. All of the above.



UTI (No Catheter) Proposed Revised Definition

1. Any **One** of the following:
 - a) Acute dysuria **OR** acute pain/swelling testes, epididymis, or prostate
 - b) Fever **OR** WBC **AND**

One or more of the following:

CVA or SP pain/tenderness
gross hematuria

new or marked increase:
frequency, urgency, incontinence
 - c) **Two or more new or increased:**
frequency, urgency, incontinence, SP pain, new gross hematuria **AND**



UTI (No Catheter) Proposed Revised Definition (2)

2. Voided urine culture with
 - a) $\geq 10^5$ cfu/ml any bug (s)

UTI = Localizing S/S & urine culture (+)

If no localizing S/S, UTI Dx made if:
blood + & urine same bug
without alternate source

Pyuria does **NOT** differentiate Sx UTI
from ASB

Absence of pyuria **excludes** UTI Dx

In the **absence of a clear source**, fever or rigors with a positive urine culture are often treated. Evidence suggests that most episodes are **NOT** from a urinary source.



Loeb M et al. Br Med J 2006;351:669-671.

UTI (Catheter*) Proposed Revised Definition

1. Any **One** of the following:
 - a) Fever, rigors, **OR** new onset hypotension with **NO** alternate site of infection
 - b) **Either** acute change MS **OR** acute functional decline with **NO** alternate diagnosis **AND** WBC
 - c) **New** onset SP or CVA pain
 - d) Purulent discharge around catheter or acute pain, swelling, tenderness testes, epididymis, or prostate

AND

2. Urine has $\geq 10^5$ cfu/ml of any organism(s). Obtained after catheter replaced if in > 14 days

* Chronic indwelling catheters

In the **absence of a clear source**, acute confusion in a patient with a catheter and a positive urine culture are often treated, but evidence suggests that most episodes are **NOT** from a urinary source.

Recent catheter trauma, obstruction, or new onset hematuria are **useful** localizing signs consistent with UTI, but not necessary for diagnosis.



Question 3

- A resident without a catheter meets criteria for UTI present when UA shows pyuria & bacteriuria and:
 1. No symptoms are present
 2. One new or worsening non-focal S/S is present without fever or leukocytosis
 3. Two new or worsening non-focal S/S are present without fever or leukocytosis
 4. All of the above



Question 4

- What is true in the resident with a catheter and UA shows pyuria & bacteriuria:
 1. UTI can be present with no S/S
 2. If in place for more than 2 wks, the catheter should be changed before culture is obtained.
 3. UTI criteria are met if leukocytosis and new change in MS or function without alternative source
 4. 2 and 3 are true



Cellulitis/Soft Tissue/Wound Infection Proposed Revised Definition

One of the following criteria met:

1. Pus present at a wound, skin, or soft tissue site.
2. **Four or more new or increasing** signs or sx at the site
 - a) heat
 - b) redness
 - c) swelling
 - d) tenderness or pain
 - e) serous drainage
 - f) **one** constitutional S/S

One or more beta hemolytic streptococcal infections may suggest an outbreak

Use NHSN SSI criteria

Superficial cultures of pressure ulcers are not sufficient for the diagnosis of infection



Scabies Proposed Revised Definition

Both of the following criteria met:

1. A maculopapular and/or itching rash

AND

2. **One** of the following:

- a) physician diagnosis
- b) scraping or biopsy +

OR

- c) epidemiological linkage to a case of scabies with lab confirmation

Rule out non-infectious skin conditions such as eczema, allergy and irritation.

Epi link = common source exposure, temporally-related onset, & geographic proximity to the facility



Fungal Oral/Perioral/Skin Infections Proposed Revised Definition

1. Oral candidiasis

Both of the following criteria met:

- a) presence of raised white patches on inflamed mucosa OR plaques on oral mucosa

AND

- b) medical OR dental dx

Mucocutaneous candida infections are due to co-morbid conditions or antibiotic use.

Non-candidal fungal infections rare & outbreaks uncommon.

2. Fungal infection

- a) characteristic rash OR skin lesions

AND

- b) either medical provider dx OR lab confirmed smear, culture OR bx



Herpes Viral Skin Infections Current Definition - Unchanged

- | | |
|---|--|
| <p>1. Herpes simplex
 Both of the following criteria met:
 a) vesicular rash
 AND
 b) either physician dx OR
 lab confirmation</p> | <p>Reactivation of H. simplex and H. zoster NOT considered an HAI</p> <p>Primary herpes viral skin infections uncommon</p> |
| <p>2. Herpes zoster
 Both of the following criteria met:
 a) vesicular rash
 AND
 b) either physician dx OR
 lab confirmation</p> | |



Question 5

- Criteria for cellulitis/SSI in a leg is met when the resident has:
 1. A chronic ulcer with redness, pain, swelling, and drainage for 2 months
 2. A incision is opened and pus is found
 3. New onset of redness, fever, pain, and swelling without hx burn or clot
 4. Both 2 and 3 are true



Question 6

- What statements of fungal and viral skin infections are true?
 1. Fungi are generally endogenous infections worsened by co-morbid conditions, antibiotics, or steroids
 2. Most herpetic lesions are due to reactivation of remote infections
 3. Transmission to other residents or HCW is unusual
 4. All of the above.



Gastroenteritis Current Definition - Unchanged

One criteria must be met:

- A. **Two or more** loose or watery stools above pt baseline in 24 hrs
- B. **Two or more** episodes of vomiting in 24 hrs
- C. **Both** of the following
 1. Stool specimen + for bacterial or viral pathogen

AND

1. At least **one** compatible gi symptom such as:
nausea, vomiting, pain,
diarrhea

Exclude **non-infectious** causes of symptoms due to medications or gallbladder disease



Norovirus Gastroenteritis Proposed New Definition

Both criteria must be met:

- A. **Two or more** loose or watery stools above pt baseline **OR two or more** episodes of unexplained vomiting in 24 hrs
- B. Stool specimen + for norovirus by EM, ELISA, or molecular test (PCR)

Lopman BA et al. *CID* 2004;39:318.

Kaplan JE et al. *Ann Intern Med* 1982;96:756.

- In an outbreak, confirm the cause
- No confirmation, assume dx by **Kaplan Criteria**

All criteria must be met:

- a) vomiting > 50% affected
- b) mean (median) incubation period 24-48 hrs
- c) mean (median) duration illness 12-60 hrs
- d) no bacterial cause ID' d



Clostridium difficile Infection Proposed New Definition

Both criteria must be met:

1. Diarrhea = **3 or more** loose or watery stools above pt baseline within 24 hrs, or the presence of toxic megacolon by x-ray
2. **One** of the following:
- A. Stool + for toxin A or B, **OR** by PCR.
- B. PMC found at endoscopy, surgery, **OR** by bx

1. Primary episode

- a) **no prior episode or**
- b) **> 8 wks prior**

2. Recurrent episode

- a) **≤ 8 wks prior and sx had resolved**

McDonald LC et al. *ICHE* 2007;28:140-145.



Infection Surveillance Attribution to LTCF

- No evidence of incubation on admission
 - based documentation of signs and symptoms
 - not just by screening microbiology data
- Onset > 3 calendar days post admission
- Debate surrounding *C. difficile*
- Consistent acute care reporting



Question 7

- What statements about criteria for gastroenteritis are true?
 1. Confirmation of norovirus by diagnostic testing is required.
 2. All residents with S/S and a positive test for *C. difficile* are considered to have a new infection
 3. Residents prior *C. difficile* infection with new S/S and diagnostic tests should be defined as having a new or recurrent infection.
 4. Both 1 and 2



Infection Surveillance in LTCF Summary

- Most McGeer Criteria retained.
- Most changes minor
- UTI revisions more specific
- New definitions for norovirus
- New definitions for *C. difficile*
- Further implementation/validation needed
- Basis for national surveillance in LTCF?



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Stone ND et al. ICHE 33:965-977, 2012.

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