

Penicillin skin testing by Infectious Diseases fellows

Updated 11/29/17, 12/30/17, 03/29/18

Introduction

Ten percent of people in the United States report a penicillin (PCN) allergy. However, only 10% have an IgE-mediated hypersensitivity reaction. The remaining 90% can tolerate PCN and other β -lactam antibiotics. Several observational studies have shown that a PCN allergy label leads to increased broad-spectrum antibiotic use and healthcare costs. In addition, a PCN allergy label may also lead to increased rates of colonization with multidrug-resistant organisms (MDRO), *Clostridium difficile* infection (CDI), and 30-day readmission. Both the American Academy of Allergy Asthma & Immunology (AAAA-I) and the Infectious Disease Society of America (IDSA) have advocated for increased allergy assessments and PCN skin testing (PST). Standardized PST programs, including those lead by Infectious Diseases (ID) fellows, have been shown to decrease broad-spectrum antibiotic use and healthcare costs.

Goals

- (1) To use a standardized PST program to decrease broad-spectrum and associated healthcare costs and adverse clinical outcomes.
- (2) To teach ID fellows a procedural skill than can be used in their future clinical practice.

Instructions

After receiving a consult for PST or identifying a patient from the ID consult list that may benefit from PST:

- (1) Document your initial assessment:
 - a. From the “Notes” tab in CPRS, start a new progress note titled PCN <<INFECTIOUS DISEASES PCN ALLERGY ASSESSMENT>> and add Dr. Yusin as the co-signer.

Progress Note Properties

Progress Note Title: PCN <ALLERGY/IMMUNOLOGY PCN ALLERGY TEST RESULT>

PCN <ALLERGY/IMMUNOLOGY PCN ALLERGY TEST RESULT>

PCN <INFECTIOUS DISEASES PCN ALLERGY SKIN TEST ASSESSI

PCP <PCP - PRIMARY AMBULATORY CARE NOTE [BP]>

PCP - PRIMARY AMBULATORY CARE NOTE [BP]

PCRN <PRIMARY CARE RN SCREENING NOTE>

PCU <PCU PATIENT CENTERED DAY PLANNER>

Date/Time of Note: Dec 19, 2017@13:02

Author: Tulloch, Luis G - INFECTIOUS DISEASES FELL

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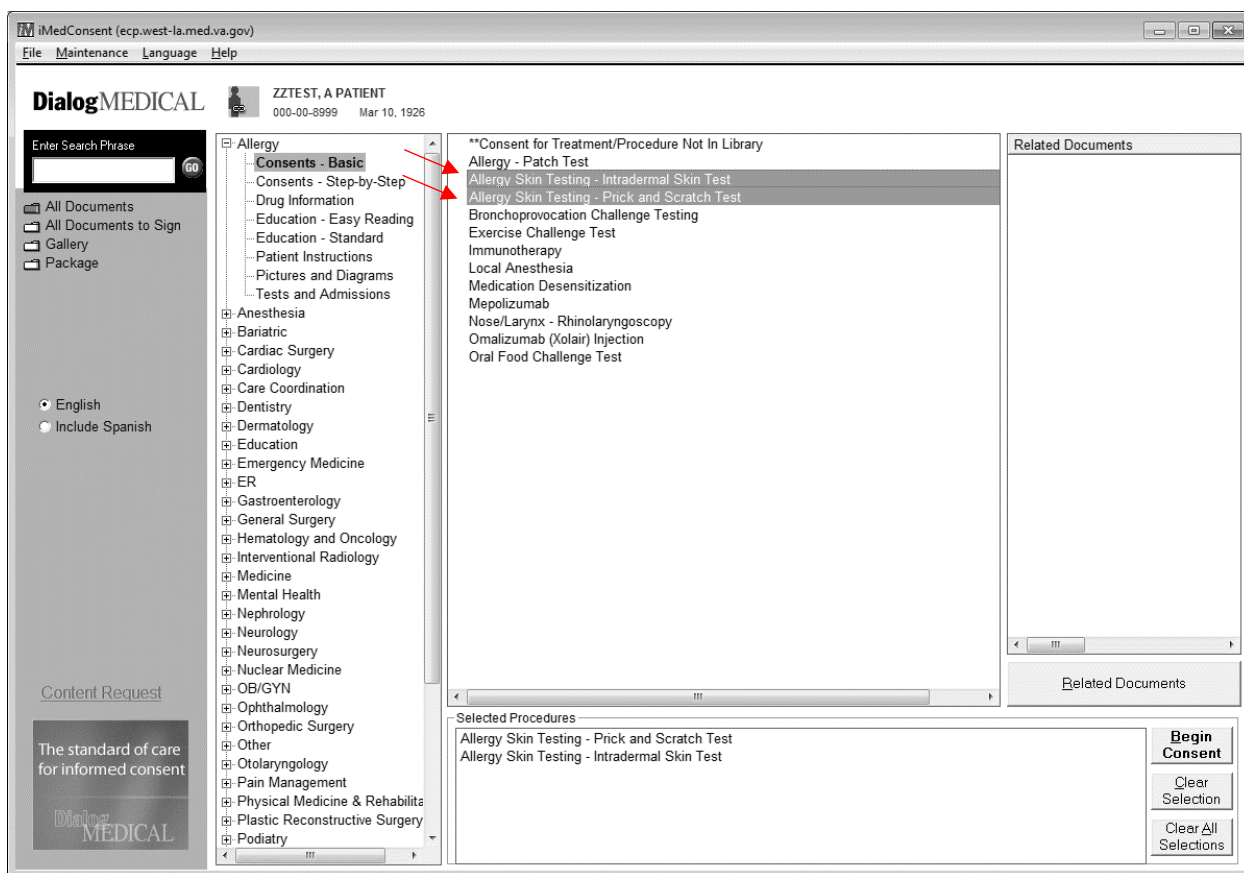
- b. Answer the template’s questions and select one of the four options under the “Assessment” section. Depending on your selection, the consult will either end (i.e. if the patient has a history of a severe non-IgE mediated hypersensitivity reaction including SJS-TEN and DRESS) or continue.

Assessment: Select from one of the following:

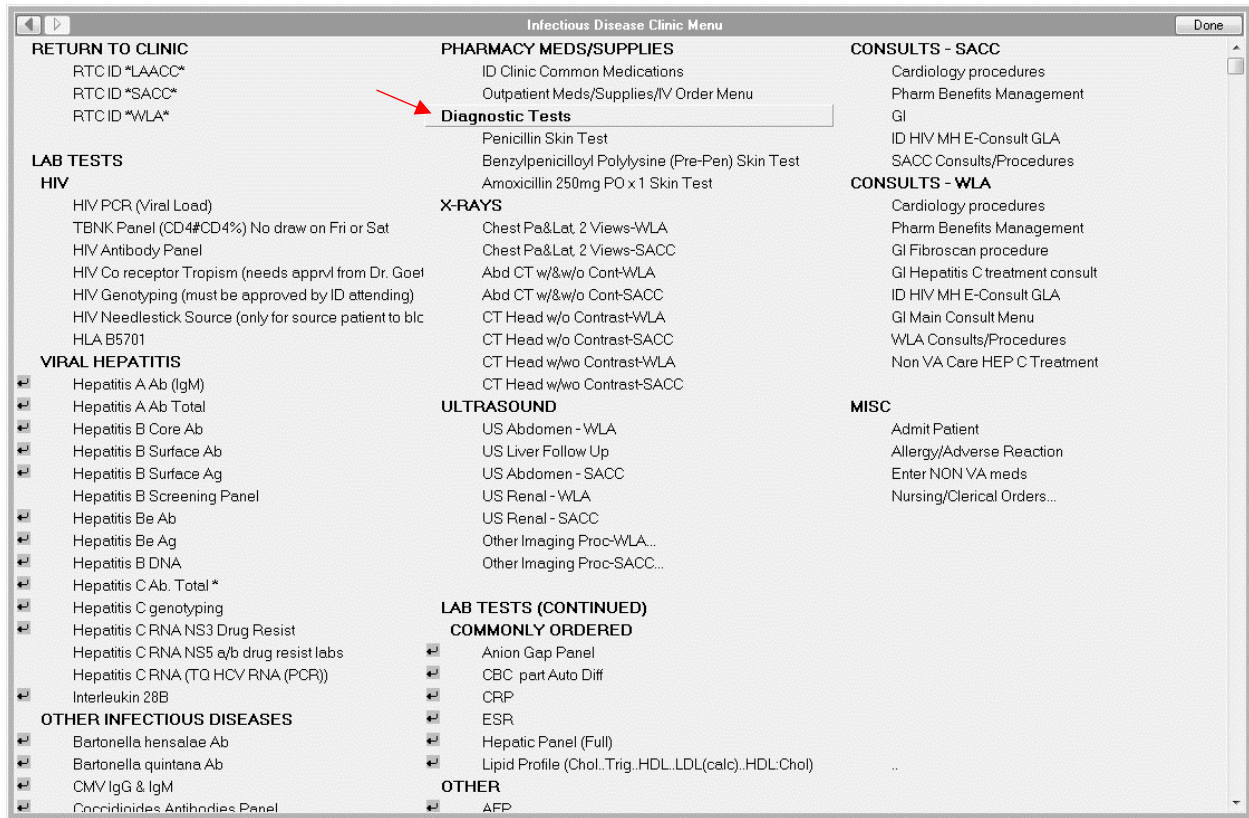
- The patient has history of Stevens Johnson Syndrome (SJS) or drug rash with eosinophilia and systemic symptoms (DRESS) while receiving penicillin or another beta-lactam antibiotic.
- The patient has convincing history of IgE mediated penicillin allergy (i.e. symptoms of airway obstruction such as laryngeal edema and dyspnea, lightheadedness, unconsciousness, pruritic urticarial rash/angioedema, upper airway itchiness, time-related vomiting or diarrhea).
- Patient has vague history of penicillin allergy (i.e. fever, vague CNS, respiratory, and/or GI symptoms, pruritus w/out a rash, unknown childhood reaction).
- Patient has an unlikely history of penicillin allergy (i.e. vaginitis 1 month after exposure to penicillin).

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- (2) Contact Dr. Yusin to determine the appropriate test setting (Allergy & Immunology Clinic Monday/Tuesday/Wednesday or Inpatient Monday-Friday).
 - a. If the PST is to be done in the Allergy & Immunology Clinic, **you are done.**
 - b. If the PST is to be done in the inpatient setting by you, arrange a time for Dr. Yusin to supervise the placement and interpretation of the PST, and proceed to step (3).
- (3) Consent the patient: Go to “Tools” and select “iMED consent.” From the “All documents” folder, open the “Allergy/Immunology” subfolder and consent the patient for the “Prick and skin test” and “Intradermal skin test.”



- (4) Order the PST supplies: From the Orders tab on CPRS, go to “WLA Outpatient Clinics Order Menu,” then go to “Infectious Diseases Clinic – WLA” and select the necessary supplies under “Diagnostic Tests.”



- (5) Perform the skin prick test:
 - a. If the skin prick test is positive, skip to step (8).
 - b. If the skin prick test is negative, proceed to step (6).
- (6) Perform the intradermal test:
 - a. If the intradermal test is positive, skip to step (8).
 - b. If the intradermal test is negative, proceed to step (7).
- (7) Perform the oral amoxicillin challenge:
 - a. Determine the optimal setting for administering the oral amoxicillin challenge: In general, stable patients may go to the Allergy & Immunology Clinic to receive the oral amoxicillin challenge. The Allergy and Immunology Clinic staff can manage any hypersensitivity reaction according to their usual protocol. In contrast, ICU patients may receive the oral amoxicillin challenge in situ if the primary service agrees to monitor the patient for an hour after he or she is challenged.
 - b. Proceed to step (8).
- (8) Document the PST results:
 - a. From the “Notes” tab in CPRS, start a new progress note titled PCN <<ALLERGY/IMMUNOLOGY PCN ALLERGY TEST RESULT>> and Add Dr. Yusin as a co-signer.

Progress Note Properties

Progress Note Title: PCN <ALLERGY/IMMUNOLOGY PCN ALLERGY TEST RESULT>

PCN <ALLERGY/IMMUNOLOGY PCN ALLERGY TEST RESULT>
 PCN <INFECTIOUS DISEASES PCN ALLERGY SKIN TEST ASSESSM
 PCP <PCP - PRIMARY AMBULATORY CARE NOTE [BP]>
 PCP - PRIMARY AMBULATORY CARE NOTE [BP]
 PCRN <PRIMARY CARE RN SCREENING NOTE>
 PCU <PCU PATIENT CENTERED DAY PLANNER>

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- b. Answer the template's questions and select one of the three options under the "Conclusion" section.

Conclusion: (Please select one of the following)

The results of the penicillin skin (epicutaneous) test, intradermal test, and/or amoxicillin oral challenge is/are POSITIVE. The patient is at higher risk than the general population for having a type I-IgE mediated reaction to penicillin and other beta-lactam antibiotics. Use of these agents should be avoided in this patient if possible. If treatment with a beta-lactam antibiotic is necessary, recommend Allergy consult for desensitization.

The result of the penicillin skin (epicutaneous) test, intradermal test, and/or amoxicillin oral challenge is/are NEGATIVE: The patient's risk of having a Type I-IgE mediated reaction to penicillin and other beta-lactam antibiotics is the same as that of the general population. Penicillin and other beta-lactams can be administered with the same cautions given to the general population. ***The penicillin allergy alert on patient's chart can be safely removed.***

The result of the penicillin skin (epicutaneous) test, intradermal test, and/or amoxicillin oral challenge is/are INDETERMINATE: The patient did not react properly to either active agent or control solutions. Based on the results of this test it is unknown whether this patient has an increased risk compared to the general population for having type I-IgE mediated reaction to penicillin and other beta-lactam antibiotics. These agents should be avoided. Retesting the patient or desensitization to penicillin antibiotics should be considered.

Appropriate education was provided to the patient regarding their penicillin skin test result and their risk of having an allergy reaction with subsequent use of a beta lactam-antibiotic.

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Training

- (1) Complete the online certification:
 - a. Go to <https://penallergytest.com/implementation-2/train-the-trainer-program/>, select "Click here to begin online training," select "Start training."
 - b. Once you complete the training, print or save your certificate of completion.
- (2) Participate in the Pre-Pen in-service trainings (arranged throughout the year).
- (3) Perform and interpret at least three PCN skin tests.

Contacts

Dr. Joseph Yusin

Office 310-478-3711 x40230

Cell 602-999-3325

Pager 5356 (rarely used)

Allergy and Immunology Clinic

310-269-3752

Alternates:

310-268-3011

310-268-3237

310-478-3711 x49077