

Patient Allergies and Electronic Health Records

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<https://psnet.ahrq.gov/web-mm/patient-allergies-and-electronic-health-records>

The Case

A 40-year-old woman presented with recurring intense right upper quadrant pain, which worsened with large meals. Her past medical history was significant for cholecystectomy 3 years earlier and gastroesophageal reflux disease controlled by proton-pump inhibitors. After she was found to have an elevated white blood cell count, an abdominal CT scan with contrast was ordered.

Upon the patient's arrival at the CT scan, a technician reviewed the electronic health record (EHR) for allergies and found none documented. The technician asked the patient whether she had ever responded poorly to contrast media or dyes. In response, the patient stated she had experienced hives upon receiving contrast in the past. Consequently, the patient was premedicated prior to receipt of the contrast agent, and diagnostic imaging was completed without further incident.

During a follow-up clinic visit, the patient discussed this contrast intolerance with a medical assistant, assuming the allergy had been documented in her medical record. Surprisingly, the intolerance was not listed. A follow-up investigation revealed that the previously stated intolerance had been removed from the patient's allergy profile and never updated at the clinic appointment. The investigation found that the medical assistant had removed contrast from the patient's allergy list because it was not a "true" allergy. She intended to ask where to document an intolerance in the EHR but forgot to ask. Consequently, the EHR had no evidence of either allergy or intolerance to contrast. This case led to a system-wide analysis of practices regarding allergy documentation in the EHR and development of a mechanism to prevent a similar event in the future.

The Commentary

by Matthew J. Doyle, MBBS

Adverse reactions to drugs (including contrast media) occur frequently and were responsible for approximately 62,000 patient admissions to hospital annually between 1996 and 2000 (Hospital Episode Statistics) in the United Kingdom (UK).⁽¹⁾ All drugs have documented adverse effects, most of which are

nonallergic in mechanism.

Drug allergies are commonly overdiagnosed, misdiagnosed, and self-diagnosed. In the UK, studies have reported up to 10% of the population stating they are allergic to penicillin. When challenge testing has been performed, only around 10% of these patients demonstrate allergy to penicillin.(2)

The 2014 National Institute for Health and Care Excellence (NICE) guideline (1) summarized the recognized presentations of drug allergy as:

- Immediate, rapidly evolving reactions: anaphylaxis, urticarial, or angioedema without systemic features; exacerbation of asthma.
- Nonimmediate reactions without systemic involvement: widespread red macules or papules (exanthem-like), fixed drug eruptions.
- Nonimmediate reactions with systemic involvement:
 - Drug reaction with eosinophilia and systemic symptoms or drug hypersensitivity syndrome characterized by widespread red macules, papules, or erythroderma; fever; lymphadenopathy; liver dysfunction; eosinophilia.
 - Stevens-Johnson syndrome.
 - Acute generalized exanthematous pustulosis.

The NICE guideline for drug allergy states that when a patient presents with a suspected drug allergy, the following should be documented: generic and proprietary name of the drug or drugs suspected to have caused the reaction, including the strength and formulation; description of the reaction; indication for the drug being taken (if there is no clinical diagnosis, describe the illness); date and time of the reaction; number of doses taken, or number of days on the drug before onset of the reaction; route of administration; and which drugs or drug classes to avoid in the future.(1) The guideline also suggests that a drug allergy history be taken and updated at all patient contacts and whenever a drug is prescribed, dispensed, or administered.(1) Wherever possible, drug allergies should be recorded separately from adverse drug reactions, but all should be evident in the patient's medical record.

It is this latter point that has historically caused difficulties. Diagnosis of true drug allergy is challenging and patients have often had adverse drug reactions recorded as allergic reactions in the past. Modern electronic records in the UK use "adverse drug reaction" codes to encompass both allergic reactions and adverse drug reactions. Even in systems where specific codes are not used, implicit details need to be recorded in order to allow future health care professionals to review the record and interpret whether the reaction could have been allergic in nature. In this particular case, an urticarial reaction to contrast medium should have been seen as allergic rather than intolerant in mechanism. Though the case history does not state the timeframe of the reaction, it implies a fairly rapid onset: "the patient stated that she had experienced hives upon receiving contrast in the past." This reaction is suggestive of an immunoglobulin E-mediated mechanism and should have been considered allergic and recorded as such.

The ability to record both drug allergies and adverse drug reactions should be available to all health care professionals involved in a patient's care. The ability to change these labels should probably be reserved for clinicians with direct knowledge of the patient and with the ability to discuss any potential change in assignment (allergy vs. adverse drug reaction) directly with the patient before such action is taken. If an

electronic health record allows coded entries differentiating allergic reaction from adverse drug reactions, then appropriate use of these codes is the most suitable option for recording. If there is doubt regarding the nature of the reaction, or if the system does not clearly allow coded differentiation, then using the term "allergic reaction" for all significant reactions to medication or devices can be considered a safe approach, reducing the risk of the patient being accidentally re-exposed because a clinician mistakenly believed a previous reaction to be nonallergic in nature. The detail required in recording such reactions should be similar to that in the NICE guideline. Only by such detailed recording is it possible to understand the context of the reaction later on in the patient's care as such documentation may need to be reviewed many years later. For example, a child may be listed as being penicillin allergic if she develops a rash 3–4 days after taking amoxicillin prescribed for a respiratory infection. The same patient may undergo a splenectomy decades later and require lifelong penicillin for prevention of bacterial infections. If the only documentation is "penicillin allergic" (without a description of the actual reaction and its context), that patient may be inappropriately given alternate and perhaps less effective prophylaxis rather than a penicillin challenge being considered.

Patients should expect and anticipate that both adverse drug reactions and allergies to drugs are appropriately recorded and shared among health care professionals involved in their care, and they should expect health care professionals to clarify their drug allergy status at each contact. Other safety mechanisms should include the addition of drug allergy status to all correspondence between health care professionals regarding a patient and to electronically produced prescriptions.

Take-Home Points

- A patient's drug allergy status should be checked and updated at all patient contacts with health care professionals.
- Recording suspected drug allergy in the patient record requires a minimum degree of detail including the reaction, the drug given, the timeframe of the reaction from initiation of the drug, and what drugs or drug groups to avoid.
- Both adverse drug reactions and drug allergies should be documented in the electronic patient record, separately if possible but together if not, and should not be removed from the record without consideration of and the involvement from the patient in the decision to remove it.
- Drug allergy status should be recorded on all written communication regarding the patient between health care professionals.

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References

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2. Kerr JR. Penicillin allergy: a study of incidence as reported by patients. *Br J Clin Pract.* 1994;48:5-7. [\[go to PubMed\]](#)

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