Impact of Inpatient Allergy Consultation on Drug Allergy Documentation and Management at an Adult Tertiary Care Center

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RATIONALE

- Allergy documentation is frequently incomplete and/or inaccurate in the electronic health record and consult recommendations are not always followed.
- A prior study demonstrated 49% of patients with negative penicillin (PCN) skin testing still carried a PCN allergy at discharge[1].
- Clinical status was found to worsen or stay unchanged 16.6x more often when allergy consult recommendations were not followed in adults with suspected drug allergy[2].
- The objectives of this study were to outline the frequency for which the Allergy service is consulted to evaluate potential adverse drug reaction in an adult tertiary care center, characterize how such reactions were evaluated, identify characteristics of patients who experienced subjective symptoms during inpatient evaluation, and assess the outcome.

METHODS

- Single-institutional analysis of drug allergy consults (N=90) placed on adult patients between July 2018 – June 2019 at a large adult tertiary care center in Columbus, Ohio (Tables 1&2)
- ICD-10 diagnostic codes associated with drug allergies or adverse drug reactions were used to select appropriate records from our consult logs.
- Clinical data was obtained by retrospective review of individual patient charts.
- This study was approved by the institutional IRB.

Table 1. Reported Drug Reactions

Reported Drug Reaction	N (Percent)
Anaphylaxis	3 (1%)
Cardiovascular Symptoms	12 (6%)
Gastrointestinal Symptoms	12 (6%)
Maculopapular Rash	22 (11%)
Mucous Membrane Involvement	4 (2%)
Other	12 (6%)
Pruritus	31 (16%)
Rash (other)	29 (14%)
Respiratory	24 (12%)
Skin Peeling	5 (3%)
Swelling	20 (9%)
Urticaria	29 (14%)

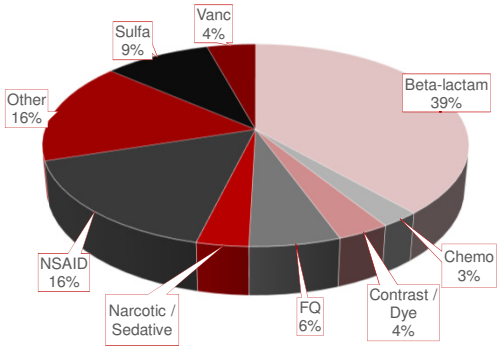
RESULTS

Table 2. Consult Characteristics

Patient Characteristics	N (Percent) N = 90
Sex	
Female	48 (53%)
Male	42 (47%)
Age (years)	
18 – 35	14 (16%)
36 – 50	26 (29%)
51 – 65	32 (35%)
>65	18 (20%)
Reason for Consult	
Evaluation of Documented Drug Allergy	40 (44%)
Concern for New Drug Allergy	24 (27%)
History of Adverse Drug Reaction	15 (17%)
History of Adverse Reaction to Multiple Drugs	11 (12%)

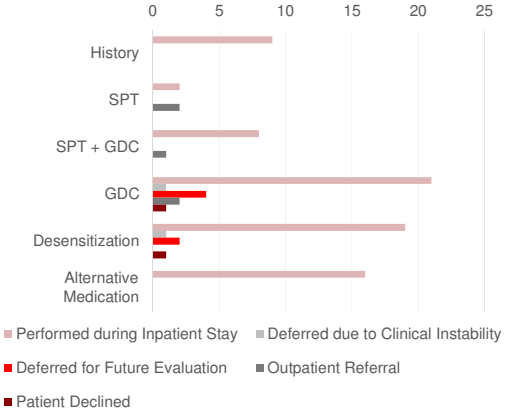
Patients had an average of 4.7 drug allergies documented at time of consult.

Fig. 1. Drug Classes



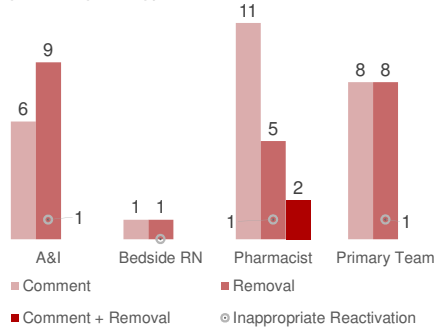
The most common drug class in question for consults was beta-lactamase antibiotics **(Figure 1)** with the most common reported drug reaction being pruritus **(Table 2).**
Chemo = chemotherapeutic agents, FQ = fluoroquinolones, NSAID = non-steroidal anti-inflammatory drug, sulfa = sulfonamide containing antibiotic, vanc = vancomycin

Fig. 2. Diagnostic Evaluation



Adverse reactions prevented completion of two aspirin desensitizations and a GDC to vancomycin.
SPT = skin prick testing, GDC = graded dose challenge

Fig. 3. Drug Allergy Modification



- The history was modified in 51 (93%) of the 55 consults warranting drug allergy modification.
- Upon follow-up, three drug allergies were inappropriately reactivated.

DISCUSSION

- The drug allergy documentation was modified accordingly in 93% of the consults suggesting appropriate communication of the diagnostic evaluation outcome to the primary team.
- Inappropriate reactivations of allergies suggests the need to clarify exactly how an allergy should be modified.
  - Specifically whether a comment should be made to an existing allergy regarding an outcome of a diagnostic evaluation or if the allergy should be entirely removed.
  - System-based interventions utilizing electronic health record alerts may also be considered to prevent inappropriate reactivations of cleared allergies.
- Drug allergy evaluation outcome education and/or provision of an allergy / adverse reaction card may also prevent future incorrect adjustments to history[3].

CONCLUSIONS

- Drug allergy documentation was modified more consistently than seen in a previous retrospective study[1].
- This retrospective study suggests the need for more education of not only the primary team but also the patient on the meaning of drug allergy diagnostic evaluation outcomes with respect to the history.

REFERENCES

1. Kao, L., Rajan, J., Roy, L., Kavosh, E., & Khan, D. A. (2013). Adverse reactions during drug challenges: A single US institutions experience. Annals of Allergy, Asthma & Immunology, 110(2). doi:10.1016/j.anai.2012.11.007
2. Otto, H. F., England, R. W., & Quinn, J. M. (2010). Inpatient allergy/immunology consultations in a tertiary care setting. Allergy and Asthma Proceedings, 31(3), 244-251. doi:10.2500/aap.2010.31.3331
3. Jarernsiripornkul, N., Chaipichit, N., Chumworathayi, P., & Krska, J. (2015). Management for improving patients' knowledge and understanding about drug allergy. *Pharmacy Practice*, *13*(1), 513. doi: 10.18549/pharmpract.2015.01.513