



Improving adverse drug reaction documentation: the analysis of the prevalence of trigger agent usage (I-ADAPT)

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Background

- An adverse drug reaction (ADR) is a harmful and unintended response to a drug that occurs at doses appropriately used for diagnosis, prophylaxis, or treatment of a disease or condition
- Comprehensive documentation and reporting of ADRs at organized health care systems are integral in identifying and minimizing medication safety issues
- However, ADR reporting may be underestimated due to lack of recognition, attitude towards reporting among health care practitioners, and knowledge of and access to reporting systems
- One method to identify ADRs is through the utilization of trigger agents which are medications given to treat suspected ADRs

Objective

- Identify the prevalence of ADRs through the evaluation of trigger agent utilization
- Determine areas of improvement in ADR reporting and documentation

Method

- An IRB-approved retrospective chart review of patients with identified ADRs through the evaluation of trigger agent usage
- Evaluated trigger agents included: diphenhydramine, dextrose, hydrocortisone, naloxone, flumazenil, 4-factor prothrombin complex concentrate (4F-PCC), and vitamin K
- Inclusion criteria:
 - 18 years of age or older
 - Received at least one dose of a trigger agent to treat an ADR from April 1, 2019 to June 30, 2019
 - Admitted to the following units: general medicine, intensive care unit, cardiac care unit, or emergency department
- Exclusion criteria:
 - Admitted to the following units: pediatric, maternity, or behavioral health
- Primary outcome:
 - Prevalence of ADRs
- Secondary outcomes
 - Common medications implicated in causing ADRs
 - Percentage of reported and documented ADRs

Results

Table 1: Baseline Characteristics	No. of ADRs n=95 (%)
Sex	
Male	46/95 (48.4)
Female	49/95 (51.6)
Age	
18-49 years	18/95 (18.9)
50-64 years	26/95 (27.4)
65-74 years	21/95 (22.1)
75 years or older	30/95 (31.6)
Place of ADR Occurrence	
Prehospital	36/95 (37.9)
Hospital-Related	59/95 (62.1)
ADRs per Patient	
One	86/90 (95.6)
Greater than one	4/90 (4.4)

Figure 1: Offending Agents Implicated in ADRs

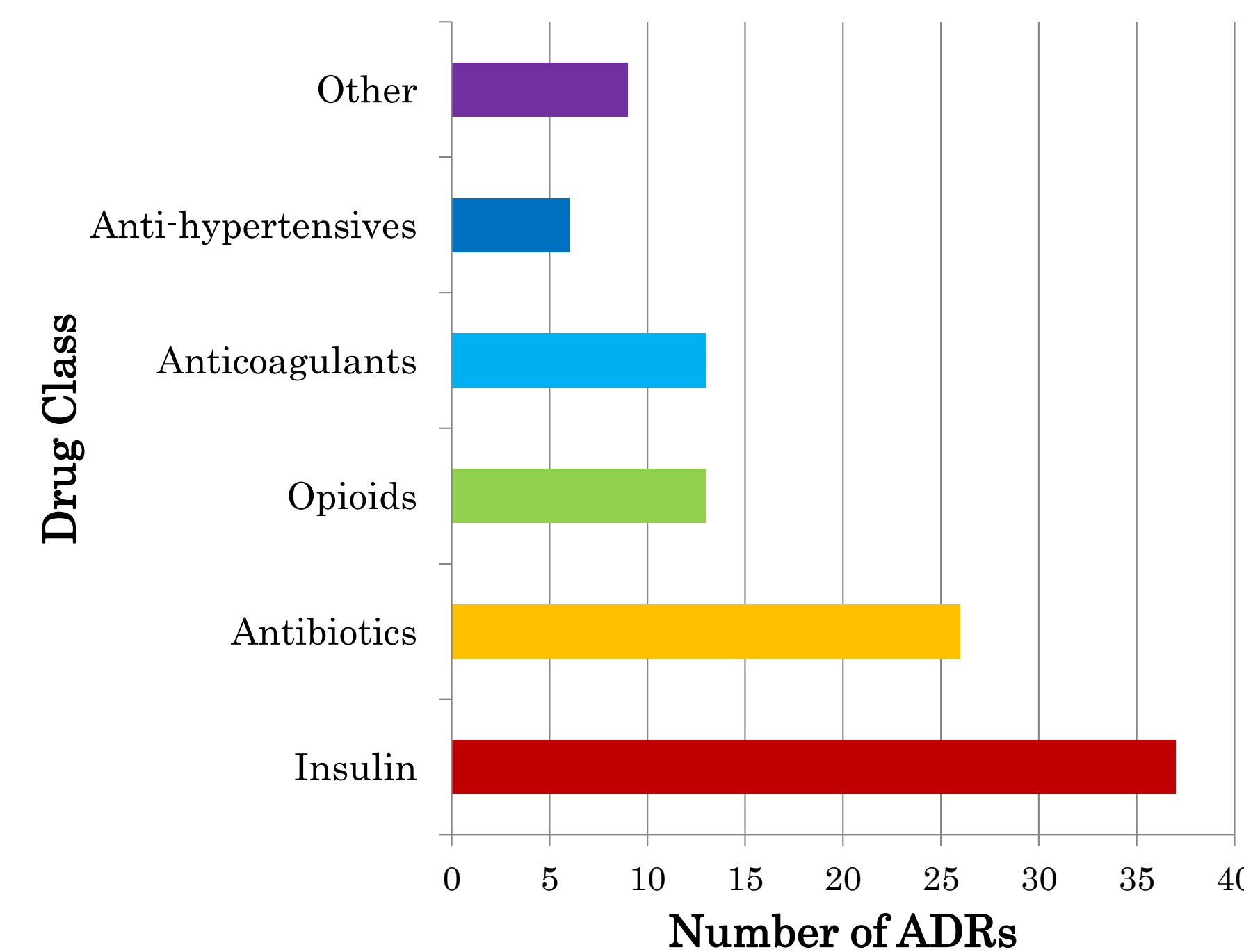
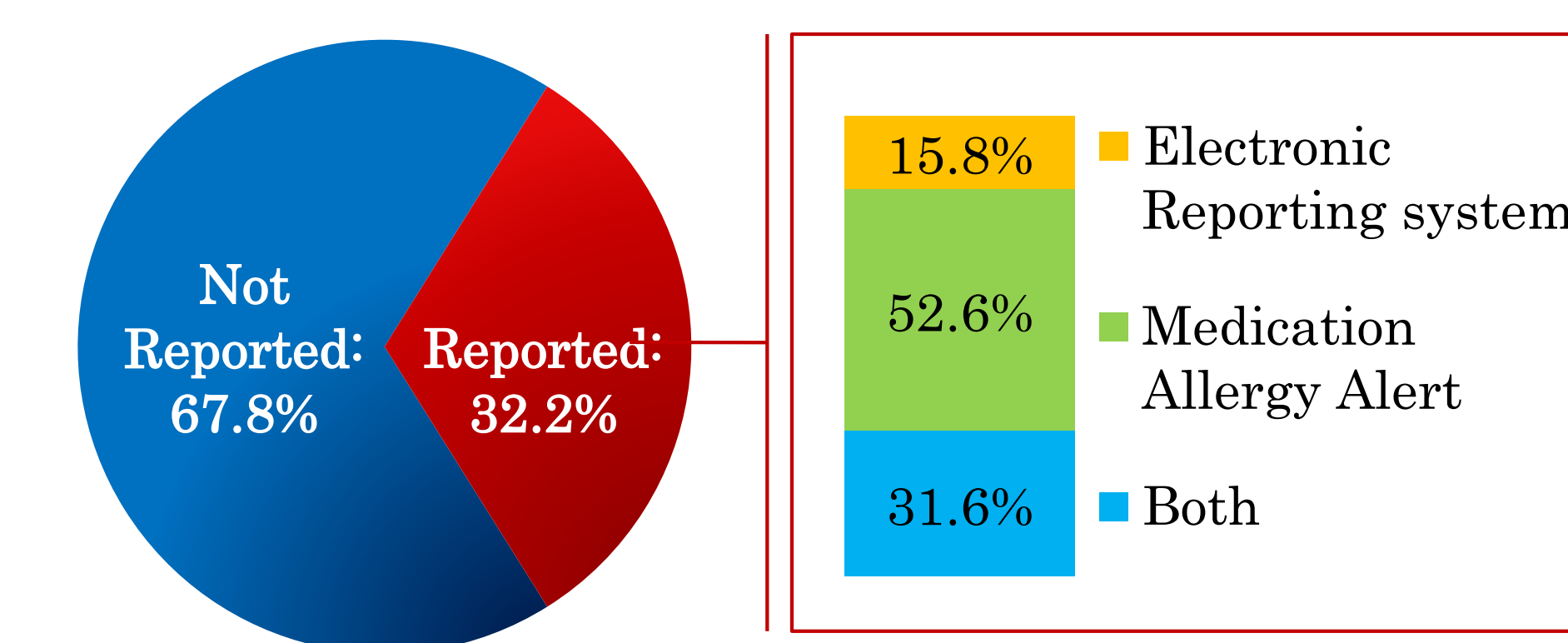


Table 2: Trigger Agents	No. of Triggers Found n=697	No. of ADRs n=95	Positive Predictive Value
Diphenhydramine	557	39	0.07
Dextrose	84	35	0.41
Naloxone	14	8	0.57
Vitamin K	9	7	0.78
4F-PCC	11	5	0.46
Hydrocortisone (topical)	19	1	0.05
Flumazenil	3	0	0

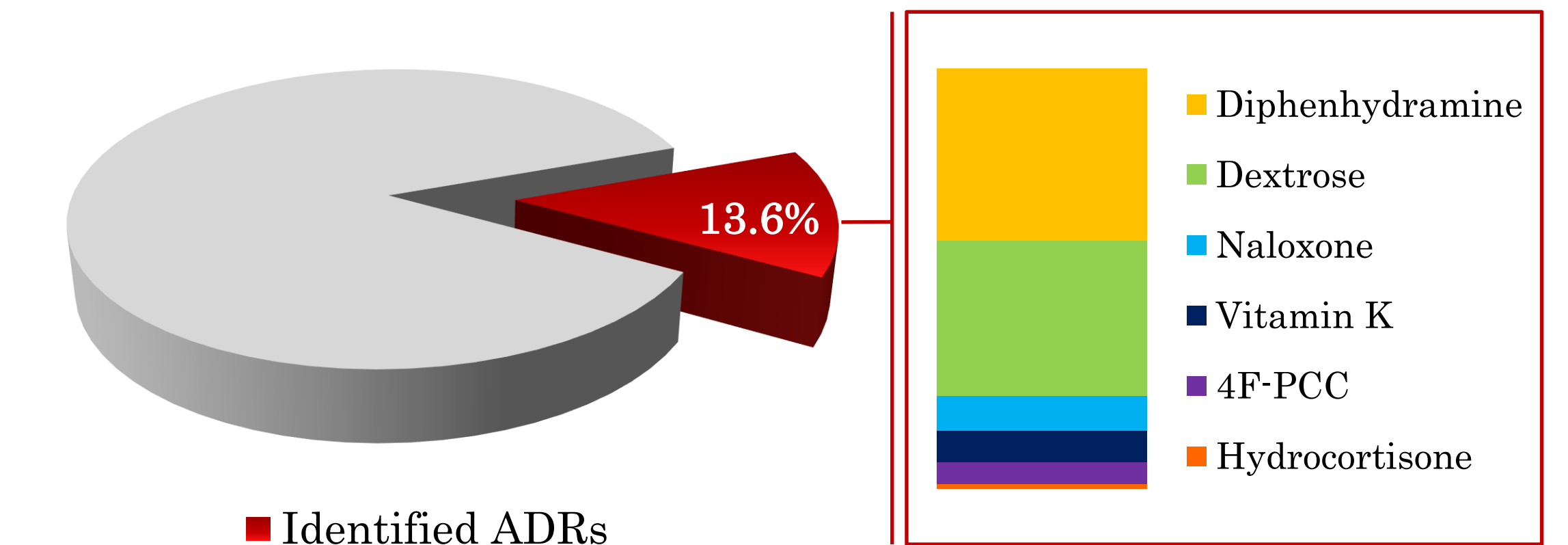
Table 3: Assessment of ADRs	No. of ADRs n=95 (%)
Naranjo Nomogram	
Definite	3/95 (3.2)
Probable	51/95 (53.7)
Possible	41/95 (41.1)
Doubtful	0/95 (0)
Hartwig and Siegel's Severity Assessment Scale	
Mild	0/95 (0)
Moderate	72/95 (75.8)
Severe	23/95 (24.2)

Figure 2: Prevalence of Reported Hospital-Related ADRs



Results (continued)

Figure 3: Prevalence of ADRs Identified Through Trigger Agent Usage



Limitations

- Use of trigger agents alone does not capture all the ADRs that occur in a given time period
- The list of trigger agents that was used to detect ADRs was limited
- Assessment of relationship of trigger agent usage to ADR was restricted to the information provided on the patient's medical charts

Conclusions

- Analysis of trigger agent usage was valuable in identifying ADR prevalence
- Trigger agent usage detected many ADRs that were not voluntarily reported or documented
- Regular reporting of ADRs through the electronic reporting system is essential to obtain accurate data and identify trends
- An opportunity to improve ADR reporting exists to standardize documentation practices and to resolve disparities in current reporting methods

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All authors have no conflicts of interest and no financial interests to disclose.
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References available upon request