2022 ICBO Abstract:

The Ontology of Adverse Events in 2022

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Abstract: The Ontology of Adverse Events (OAE) was launched in 2014 to define, standardize and integrate various adverse events (AEs) arising subsequent to medical interventions (such as vaccination, drug administration, and surgery). The AE term system of OAE has grown steadily since OAE has successfully been applied in many adverse event studies. Here, we present recent major extensions of the OAE for patient anatomic regions and clinical outcomes (e.g., symptoms, signs, and abnormal process). Up to now, OAE has 10,829 terms with unique identifiers, including 10,589 classes, 120 object properties, 3 datatype properties, 113 annotation properties, and 4 instances. Compared to the 3,088 ontology terms included in the last OAE publication in 2014, 7,741 new terms (over twofold more terms) have been added to OAE, which representing significant progress of the ontology. We have also reviewed recent studies using OAE for representing and classifying the adverse events associated with specific medical interventions (e.g., drug administration and vaccination). The OAE ontological framework provides a platform for systematic representation and analysis of adverse events and of the factors (e.g., vaccination route and age) important for determining their clinical outcomes.

Keywords: ontology, adverse event, medical intervention, drug, vaccine

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