



Proposed Changes to the Vaccine Injury Table (VIT)'s Qualifications and Aids to Interpretation (QAI)

- 1) Organization/Expansion
- 2) Definitions for the purposes of the VIT
- 3) Harmonization of sections and subsections

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Proposed QAI: Organization



- Moved from inside each row of VIT which is section (a) to section (b) right below the VIT as *Provision that applies to all vaccines listed: Any acute complication or sequela, including death, of the illness, disability, injury, or condition listed*
- Glossary set up as section (d) which pertains to both section (b) & (c)
- Moved from section (c)(2) to Glossary: *Significantly decreased level of consciousness definitions*
- Moved from section (c)(2) to Glossary: *Chronic Encephalopathy definitions*
- Moved from section (c)(2) to Glossary: *seizure and sequela definitions*



Proposed QAI: Expansion



- Subsections under (c) increased from 9 (current VIT version) to 13.
- Addition of the definition of **encephalitis** (for the purposes of the Table). Encephalitis has always been listed together with encephalopathy in the VIT but did not have a definition in the QAI.
- Addition of **Shoulder Injury Related to Vaccine Administration (SIRVA) QAI** as subsection 10
- Addition of **disseminated varicella-strain virus disease QAI** as subsection 11
- Addition of **varicella vaccine-strain viral reactivation disease QAI** as subsection 12
- Addition of **vasovagal syncope QAI** as subsection 13



Proposed QAI: Definitions



- Subsection 5: Chronic Arthritis defined: as persistent joint swelling with at least two additional manifestations of warmth, tenderness, pain with movement, or limited range of motion, lasting for at least 6 months
- Subsection 7: Clinical definition for Thrombocytopenic purpura added: is defined by the presence of clinical manifestations, such as petechiae, significant bruising, or spontaneous bleeding, and by a serum platelet count less than 50,000/mm³ with normal red and white blood cell indices
- Section (d): Definition of “injected” added: refers to the intramuscular or subcutaneous needle administration of a vaccine
- Section (d): Definition of “immunodeficient recipient” added: defined as an individual with an inherited or acquired disorder resulting from an identifiable defect in the immunological system which impairs the body’s ability to fight infections. The identifiable defect, such as absent T lymphocytes in severe combined immunodeficiency or decreased CD4 cell counts in acquired immunodeficiency syndrome, must be demonstrated in the medical records



Proposed QAI: Harmonization



- Section (c) subsections 2 and 3: acute encephalopathy and acute encephalitis with both leading to chronic encephalopathy in section (d)
- Section (c) statements removed: redundant wording (that there is presumption of causation for VIT listed injury and that the entire medical record should be considered) and applies to all the injuries not just encephalopathy
- Section (c) subsection (6): Brachial neuritis QAI harmonized in organizational structure like other sections, particularly SIRVA. No changes in content.
- Section (c): Minor technical changes to update medical language as well as add adolescent/adult conditions when applicable
 - Subsection (2)(i)(C) symptoms of dementia
 - Subsection (2)(ii)(B) stroke, transient ischemic attack, complicated migraine, drug use (illicit or prescribed)
 - Subsection (5)(ii) replace rheumatoid with idiopathic
 - Section (d) subsection 5 add pseudo-seizures



Section (c) subsection (2) Acute Encephalopathy
Section (c) subsection (3) Acute Encephalitis

Section (d)(1) Chronic encephalopathy



Encephalopathy/encephalitis 2011 IOM Report



- The 2011 IOM committee concluded evidence inadequate to accept or reject a causal association between acellular pertussis (aP)-containing vaccines and encephalopathy or encephalitis.
- Since the 1979 British National Childhood Encephalopathy Study (NCES) and 1994 10-year NCES follow-up, a more recent large scale study failed to show a relationship between whole cell pertussis (wP) containing vaccines and encephalopathy or encephalitis.
- Acellular pertussis vaccines licensed in 1996 for use in infants < 12 months.
 - Developed because of concerns of neurologic events with wP containing vaccines
 - Have become vaccine recommended for all infants, young children, teens and adults



Encephalopathy/encephalitis

Pertussis-containing vaccines



- Toxicologists believe that the components in whole cell and acellular pertussis vaccines should be treated as separate entities.
- aP-containing vaccines have pertussis toxin that has been inactivated to a toxoid and a significantly reduced amount of other constituents, including known neurotoxins.
- Animal studies show differences between these 2 vaccines.
- Clinical studies with aP show a significant decrease in several side effects, including crying, fevers, fussiness, and febrile seizures.



Acellular pertussis – encephalopathy/encephalitis



- A study included in the IOM (Yih 2009) evaluated adolescents and adults who had encephalitis, encephalopathy or meningitis within 42 days of Tdap vaccination. The number of cases of the adverse event in the aP group was less than a historical Td cohort.
- Large scale epidemiologic studies did not show an increased risk of these events, but their data was based mainly on a passive surveillance system. No appropriate epidemiologic study has been done that evaluates aP containing vaccines in infants and children.
- Concern regarding severe neurologic effects after wP containing vaccines was a paramount reason for developing the VIT. Thus, at the current time, following the Guiding Principles, no changes are proposed to the VIT. We are proposing to add the definition for encephalitis.



Acellular pertussis – Encephalopathy/ Encephalitis



References

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Acellular pertussis – Encephalopathy/ Encephalitis



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MMR Vaccine - Encephalopathy/ Encephalitis



2011 IOM committee assessed that based upon available evidence:

- Epidemiological evidence is limited.
- Mechanistic evidence is weak based on our knowledge about natural infection and few case reports.
 - Natural (wild-type) infection (measles, mumps and/or rubella virus) resulting in encephalopathy/encephalitis is through damage to the neurons by direct viral invasion.
 - Mechanism is direct viral infection and/or viral reactivation (particularly in immunocompromised patients) that may result in vaccine-associated encephalopathy/encephalitis, but the publications available presented did not provide evidence linking these mechanisms directly to MMR vaccine strains (detection of viral antigens or frozen sections, not the identification of the vaccine strains)



MMR Vaccine - Encephalopathy/ Encephalitis



- Committee concluded that the evidence is inadequate to accept or reject a causal relationship between MMR vaccine and encephalopathy or encephalitis
- Task Force Working Group for MMR also reviewed the evidence from IOM Report and concluded that under the Guiding Principles, this adverse event should remain on the Table with definitions added for encephalitis



MMR Vaccine - Encephalopathy/ Encephalitis



References

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MMR Vaccine - Encephalopathy/ Encephalitis



References

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Encephalopathy



Proposed Changes to Acute and Chronic Encephalopathy QAI

Although the main substance and definition has not changed, we:

- Combined similar sections and simplified wording
- Removed repetitive themes or sentences
- Deleted “increased intracranial pressure may be a clinical feature of ...” as it has no impact on the diagnosis of encephalopathy
- Defined “seizure” in the context of encephalopathy/encephalitis
- Added adult illnesses that would lead to exclusion as a Table injury (previous illnesses were mainly pediatric)
- Moved significantly decreased level of consciousness definitions and chronic encephalopathy to the “glossary” and added the term, encephalitis, when appropriate



Proposed QAI for encephalitis

Although the current QAI contains encephalitis as a Table injury, it does not include a distinct definition. We developed and now propose a definition for encephalitis.

To meet criteria for a Table injury, a petitioner must demonstrate:

1. an altered level of consciousness or other neurologic deficit by exhibiting:
 - Evidence of an acute encephalopathy, or
 - A neurologic sign that is referable to the central nervous system, including focal cortical signs, cranial nerve abnormalities, visual field defects, primitive reflexes, or cerebellar dysfunction.

Plus

Proposed QAI for encephalitis (cont.)

2. Evidence of an inflammatory process in the brain, which must include either cerebrospinal fluid pleocytosis or at least 2 of the following:
 - Fever
 - Electroencephalogram findings consistent with encephalitis
 - Neuroimaging findings consistent with encephalitis or parenchymal inflammation

Encephalitis cannot be due to another cause as shown by a preponderance of evidence.

To meet criteria for a table injury, sequela(e) must persist at least 6 months or a chronic encephalopathy must ensue the illness.

References

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