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The following report(s) provides specifications from an FDA-initiated query using Sentinel. While Sentinel queries may be undertaken to assess potential medical product safety risks, they may also be initiated for various other reasons. Some examples include determining a rate or count of an identified health outcome of interest, examining medical product use, exploring the feasibility of future, more detailed analyses within Sentinel, and seeking to better understand Sentinel capabilities.

Data obtained through Sentinel are intended to complement other types of evidence such as preclinical studies, clinical trials, postmarket studies, and adverse event reports, all of which are used by FDA to inform regulatory decisions regarding medical product safety. The information contained in this report is provided as part of FDA's commitment to place knowledge acquired from Sentinel in the public domain as soon as possible. Any public health actions taken by FDA regarding products involved in Sentinel queries will continue to be communicated through existing channels.

The following report contains a description of the request, request specifications, and associated code lists used to fulfill the request.

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Overview for Request soc_mpd_wp021_nsdp_v01

Request ID: soc_mpd_wp021_nsdp_v01

Request Description: The goal of this request was to test the Inpatient Encounter Tool developed by Sentinel Operations Center by assessing background rates of Neonatal Enteroviral Sepsis (NES) incidence and NES-associated mortality using inpatient data from the Sentinel Common Data Model (SCDM). Infants with NES and those who were treated with intravenous immune globulin (IVIg) were identified, and stratified by patient demographic and encounter characteristics.

Sentinel Modular Program Tool Used: Inpatient Encounter Tool, version 1.0.0[1]

Data Source: Inpatient encounter data from July 1, 2012 to March 31, 2016 were included in this request. It was executed on May 23, 2018.

Study Cohort: Inpatient encounter data was used to identify neonates less than 60 days of age who were admitted to the hospital with an NES diagnosis. NES was defined using an 8-tier case definition algorithm including encounters with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and ICD-10-CM diagnosis codes for sepsis, enteroviral infection, coagulopathies, liver, and/or cardiac dysfunctions. Please see Appendix A for NES diagnosis codes, and Appendices B-F for diagnosis codes used to define health outcomes included in the NES algorithm. See Appendix J for an overview of the health outcome inclusion criteria for each of the eight tiers in the case definition algorithm. Among the NES-identified encounters, the number of neonates who received IVIg during the encounter stay was estimated. Please see Appendix G for procedure codes and Appendix H for generic drug names used to define IVIg exposure in this request.

Exclusion Criteria: Patients that were prescribed antibiotics, antifungals, or antivirals longer than two days with a gap of one day between administrations were excluded. Duration of use was estimated using admininstration dates for these drugs from the Inpatient Pharmacy table of the SCDM. Please see Appendix I for generic drug names used to define exclusion criteria in this request.

Patient Demographics and Encounter Characteristics: NES-identified inpatient encounters and those with and without IVIg use were presented stratified by patients' demographic characteristics including patient's age at admission, sex, and encounter features (admission year, length of stay, and discharge disposition/mortality).

Please refer to the Specifications for detailed specifications of parameters used in this request.

Limitations: Algorithms to define exposures, inclusion and exclusion criteria may be imperfect and could be potentially misclassified. Therefore, data should be interepreted with this limitation in mind.

Notes: This request was also run using ad-hoc programming which implemented similar cohort identification criteria as described above, but only excluded patients with a first exposure episode to antibiotics, antifungals, or antivirals during their inpatient stay that exceeded two days. Patients with episodes of antibiotic, antifungal or antiviral exposure ≤2 days during their inpatient stay were not excluded since patients may be initiated on these therapies and later discontinued once laboratory results for diagnosis of NES is confirmed.

Please contact the Sentinel Operations Center Query Fulfillment Team (qf@sentinelsystem.org) for questions and to provide comments/suggestions for future enhancements to this document.

[1]Sentinel Operations Center. (2018). "Inpatient Encounter Querying Tool: Overview of Functionality and Technical Documentation." Sentinel Modular Programs. [online]. Sentinelinitiative.org. Available at: https://www.sentinelinitiative.org/sites/default/files/surveillance-tools/routine-querying/Sentinel-Routine_Inpatient_Encounter_Querying_System-Documentation_1.0.1.pdf [Accessed 15 November 2018].

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Glossary of Terms for Analyses Using
Cohort Identification and Descriptive Analysis (CIDA) Tool*

Amount Supplied - number of units (pills, tablets, vials) dispensed. Net amount per NDC per dispensing.

Blackout Period - number of days at the beginning of a treatment episode that events are to be ignored. If an event occurs during the blackout period, the episode is excluded.

Care Setting - type of medical encounter or facility where the exposure, event, or condition code was recorded. Possible care settings include: Inpatient Hospital Stay (IP), Non-Acute Institutional Stay (IS), Emergency Department (ED), Ambulatory Visit (AV), and Other Ambulatory Visit (OA). For laboratory results, possible care settings include: Emergency department (E), Home (H), Inpatient (I), Outpatient (O), or Unknown or Missing (U). Along with the Principal Diagnosis Indicator, forms the Care Setting/PDX parameter.

> **Ambulatory Visit (AV) -** includes visits at outpatient clinics, same-day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.

> **Emergency Department (ED) -** includes ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits.

> **Inpatient Hospital Stay (IP) -** includes all inpatient stays, same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.

> **Non-Acute Institutional Stay (IS) -** includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.

> **Other Ambulatory Visit (OA) -** includes other non overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.

Cohort Definition (drug/exposure) - indicates how the cohort will be defined: (1): Cohort includes only the first valid treatment episode during the query period; (2): Cohort includes all valid treatment episodes during the query period; (3): Cohort includes all valid treatment episodes during the query period until an event occurs.

Days Supplied - number of days supplied for all dispensings in qualifying treatment episodes.

Eligible Members - number of members eligible for an incident treatment episode (defined by the drug/exposure and event washout periods) with drug and medical coverage during the query period.

Enrollment Gap - number of days allowed between two consecutive enrollment periods without breaking a "continuously enrolled" sequence.

Episodes - treatment episodes; length of episode is determined by days supplied in one dispensing or consecutive dispensings bridged by the episode gap.

Episode Gap - number of days allowed between two (or more) consecutive exposures (dispensings/procedures) to be considered the same treatment episode.

Event Deduplication - specifies how events are counted by the MP algorithm: (0): Counts all occurrences of an HOI during an exposure episode; (1): de-duplicates occurrences of the same HOI code and code type on the same day; (2): de-duplicates occurrences of the same HOI group on the same day (e.g., de-duplicates at the group level).

Exposure Episode Length - number of days after exposure initiation that is considered "exposed time."

Exposure Extension Period - number of days post treatment period in which the outcomes/events are counted for a treatment episode. Extensions days are added after any episode gaps have been bridged.

Lookback Period - number of days wherein a member is required to have evidence of pre-existing condition (diagnosis/procedure/drug dispensing).

Maximum Episode Duration - truncates exposure episodes after a requester-specified number of exposed days. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Member-Years - sum of all days of enrollment with medical and drug coverage in the query period preceded by an exposure washout period all divided by 365.25.

Minimum Days Supplied - specifies a minimum number of days in length of the days supplied for the episode to be considered.

Minimum Episode Duration - specifies a minimum number of days in length of the episode for it to be considered. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Monitoring Period - used to define time periods of interest for both sequential analysis and simple cohort characterization requests.

Principal Diagnosis (PDX) - diagnosis or condition established to be chiefly responsible for admission of the patient to the hospital. 'P' = principal diagnosis, 'S' = secondary diagnosis, 'X' = unspecified diagnosis, '.' = blank. Along with the Care Setting values, forms the Caresetting/PDX parameter.

Query Period - period in which the modular program looks for exposures and outcomes of interest.

Treatment Episode Truncation Indicator - indicates whether the exposure episode will be truncated at the occurrence of a requester-specified code.

Washout Period (drug/exposure) - number of days a user is required to have no evidence of prior exposure (drug dispensing/procedure) and continuous drug and medical coverage prior to an incident treatment episode.

Washout Period (event/outcome) - number of days a user is required to have no evidence of a prior event (procedure/diagnosis) and continuous drug and medical coverage prior to an incident treatment episode.

Years at Risk - number of days supplied plus any episode gaps and exposure extension periods all divided by 365.25.

*not all terms may be used in this report

Specifications for Parameters used in Request soc_mpd_wp021_nsdp_v01

This request executed the Inpatient Encounter Tool, version 1.0.0, to assess background rates of Neonatal Enteroviral Sepsis (NES) incidence and NES-associated mortality in neonates less than 60 days old, in the Sentinel inpatient encounter data.

Query Period: July 1, 2012 to March 31, 2016
Cohort Restriction: Less than 60 days only
Age Groups: 0-30, 31-59 days
Caresetting: Inpatient Encounters Only

Scenario	Group	Exposure	Cohort Definition	Prescription (Rx) Criteria Criterion	Include / Exclude	Intravenous Immune Globulin (IVIg) Criteria Criterion	Include / Exclude	Case Definition Criteria Pre-Existing Condition	Include / Exclude
1	ExcRx_InclVIg_1	NES	All valid encounters	≥ 3 or 0 Prescription Administration Dates (RxADates) within the same drug category (Antibiotic (AB) or Antiviral (AV))	Exclude	IVIg	Include	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Liver Dysfunction, Cardiac Dysfunction	Include
2	ExcRx_InclVIg_2	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Include	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Liver Dysfunction	Include
								Cardiac Dysfunction	**Exclude**
3	ExcRx_InclVIg_3	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Include	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Cardiac Dysfunction	Include
								Liver Dysfunction	**Exclude**
4	ExcRx_InclVIg_4	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Include	Sepsis, Enteroviral Infection, Liver Dysfunction, Cardiac Dysfunction	Include
								Bleeding Dysfunction	**Exclude**

Scenario	Group	Exposure	Cohort Definition	Prescription (Rx) Criteria		Intravenous Immune Globulin (IVIg) Criteria		Case Definition Criteria	
		Exposure	Cohort Definition	Criterion	Include / Exclude	Criterion	Include / Exclude	Pre-Existing Condition	Include / Exclude
5	ExcRx_IncIVIg_5	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Include	Sepsis, Enteroviral Infection, Bleeding Dysfunction	Include
								Liver Dysfunction, Cardiac Dysfunction	**Exclude**
6	ExcRx_IncIVIg_6	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Include	Sepsis, Enteroviral Infection, Liver Dysfunction	Include
								Bleeding Dysfunction, Cardiac Dysfunction	**Exclude**
7	ExcRx_IncIVIg_7	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Include	Sepsis, Enteroviral Infection, Cardiac Dysfunction	Include
								Bleeding Dysfunction, Liver Dysfunction	**Exclude**
8	ExcRx_IncIVIg_8	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Include	Sepsis, Enteroviral Infection	Include
								Bleeding Dysfunction, Liver Dysfunction, Cardiac Dysfunction	**Exclude**
9	ExcRx_ExcIVIg_1	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Exclude	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Liver Dysfunction, Cardiac Dysfunction	Include
10	ExcRx_ExcIVIg_2	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Exclude	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Liver Dysfunction	Include
								Cardiac Dysfunction	**Exclude**

Scenario	Group	Exposure	Exposure Cohort Definition	Prescription (Rx) Criteria Criterion	Include / Exclude	Intravenous Immune Globulin (IVIg) Criteria Criterion	Include / Exclude	Case Definition Criteria Pre-Existing Condition	Include / Exclude
11	ExcRx_ExcIVIg_3	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Exclude	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Cardiac Dysfunction	Include
								Liver Dysfunction	**Exclude**
12	ExcRx_ExcIVIg_4	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Exclude	Sepsis, Enteroviral Infection, Liver Dysfunction, Cardiac Dysfunction	Include
								Bleeding Dysfunction	**Exclude**
13	ExcRx_ExcIVIg_5	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Exclude	Sepsis, Enteroviral Infection, Bleeding Dysfunction	Include
								Liver Dysfunction, Cardiac Dysfunction	**Exclude**
14	ExcRx_ExcIVIg_6	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Exclude	Sepsis, Enteroviral Infection, Liver Dysfunction	Include
								Bleeding Dysfunction, Cardiac Dysfunction	**Exclude**
15	ExcRx_ExcIVIg_7	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Exclude	Sepsis, Enteroviral Infection, Cardiac Dysfunction	Include
								Bleeding Dysfunction, Liver Dysfunction	**Exclude**
16	ExcRx_ExcIVIg_8	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	IVIg	Exclude	Sepsis, Enteroviral Infection	Include
								Bleeding Dysfunction, Liver Dysfunction, Cardiac Dysfunction	**Exclude**

Scenario	Group	Exposure	Exposure / Cohort Definition	Prescription (Rx) Criteria		Intravenous Immune Globulin (IVIg) Criteria		Case Definition Criteria	
		Exposure	Cohort Definition	Criterion	Include / Exclude	Criterion	Include / Exclude	Pre-Existing Condition	Include / Exclude
17	ALLRx_IncIVIg_1	NES	All valid encounters	-	-	IVIg	Include	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Liver Dysfunction, Cardiac Dysfunction	Include
18	ALLRx_IncIVIg_2	NES	All valid encounters	-	-	IVIg	Include	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Liver Dysfunction	Include
								Cardiac Dysfunction	**Exclude**
19	ALLRx_IncIVIg_3	NES	All valid encounters	-	-	IVIg	Include	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Cardiac Dysfunction	Include
								Liver Dysfunction	**Exclude**
20	ALLRx_IncIVIg_4	NES	All valid encounters	-	-	IVIg	Include	Sepsis, Enteroviral Infection, Liver Dysfunction, Cardiac Dysfunction	Include
								Bleeding Dysfunction	**Exclude**
21	ALLRx_IncIVIg_5	NES	All valid encounters	-	-	IVIg	Include	Sepsis, Enteroviral Infection, Bleeding Dysfunction	Include
								Liver Dysfunction, Cardiac Dysfunction	**Exclude**
22	ALLRx_IncIVIg_6	NES	All valid encounters	-	-	IVIg	Include	Sepsis, Enteroviral Infection, Liver Dysfunction	Include
								Bleeding Dysfunction, Cardiac Dysfunction	**Exclude**

Scenario	Group	Exposure	Cohort Definition	Prescription (Rx) Criteria		Intravenous Immune Globulin (IVIg) Criteria		Case Definition Criteria	
		Exposure		Criterion	Include / Exclude	Criterion	Include / Exclude	Pre-Existing Condition	Include / Exclude
23	ALLRx_InclVIg_7	NES	All valid encounters	-	-	IVIg	Include	Sepsis, Enteroviral Infection, Cardiac Dysfunction	Include
								Bleeding Dysfunction, Liver Dysfunction	**Exclude**
24	ALLRx_InclVIg_8	NES	All valid encounters	-	-	IVIg	Include	Sepsis, Enteroviral Infection	Include
								Bleeding Dysfunction, Liver Dysfunction, Cardiac Dysfunction	**Exclude**
25	ALLRx_ExclVIg_1	NES	All valid encounters	-	-	IVIg	Exclude	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Liver Dysfunction, Cardiac Dysfunction	Include
26	ALLRx_ExclVIg_2	NES	All valid encounters	-	-	IVIg	Exclude	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Liver Dysfunction	Include
								Cardiac Dysfunction	**Exclude**
27	ALLRx_ExclVIg_3	NES	All valid encounters	-	-	IVIg	Exclude	Sepsis, Enteroviral Infection, Bleeding Dysfunction, Cardiac Dysfunction	Include
								Liver Dysfunction	**Exclude**
28	ALLRx_ExclVIg_4	NES	All valid encounters	-	-	IVIg	Exclude	Sepsis, Enteroviral Infection, Liver Dysfunction, Cardiac Dysfunction	Include
								Bleeding Dysfunction	**Exclude**

Scenario	Group	Exposure	Cohort Definition	Prescription (Rx) Criteria		Intravenous Immune Globulin (IVIg) Criteria		Case Definition Criteria	
		Exposure	Cohort Definition	Criterion	Include / Exclude	Criterion	Include / Exclude	Pre-Existing Condition	Include / Exclude
29	ALLRx_ExcIVIg_5	NES	All valid encounters	-	-	IVIg	Exclude	Sepsis, Enteroviral Infection, Bleeding Dysfunction	Include
								Liver Dysfunction, Cardiac Dysfunction	**Exclude**
30	ALLRx_ExcIVIg_6	NES	All valid encounters	-	-	IVIg	Exclude	Sepsis, Enteroviral Infection, Liver Dysfunction	Include
								Bleeding Dysfunction, Cardiac Dysfunction	**Exclude**
31	ALLRx_ExcIVIg_7	NES	All valid encounters	-	-	IVIg	Exclude	Sepsis, Enteroviral Infection, Cardiac Dysfunction	Include
								Bleeding Dysfunction, Liver Dysfunction	**Exclude**
32	ALLRx_ExcIVIg_8	NES	All valid encounters	-	-	IVIg	Exclude	Sepsis, Enteroviral Infection	Include
								Bleeding Dysfunction, Liver Dysfunction, Cardiac Dysfunction	**Exclude**
33	ALL_IP_Enc_60D	NES	All valid encounters	-	-	-	-	-	-
34	ALL_IP_Enc_60D_ExcIR	NES	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	-	-	-	-
35	ALL_IVIg	IVIg	All valid encounters	-	-	-	-	-	-

Scenario	Group	Exposure	Exposure Cohort Definition	Prescription (Rx) Criteria Criterion	Prescription (Rx) Criteria Include / Exclude	Intravenous Immune Globulin (IVIg) Criteria Criterion	Intravenous Immune Globulin (IVIg) Criteria Include / Exclude	Case Definition Criteria Pre-Existing Condition	Case Definition Criteria Include / Exclude
36	ALL_IVIg_ExcIR	IVIg	All valid encounters	≥ 3 or 0 RxADates within the same drug category (AB or AV)	Exclude	-	-	-	-
37		NES (No Age Restrictions)	All valid encounters	-	-	-	-	-	-

Appendix A. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Neonatal Enteroviral Sepsis in this Request

Code	Description	Code Type
ICD-9-CM		
771.81	Septicemia (sepsis) of newborn	ICD-9-CM Diagnosis
038	Septicemia	ICD-9-CM Diagnosis
038.8	Other specified septicemia	ICD-9-CM Diagnosis
038.9	Unspecified septicemia	ICD-9-CM Diagnosis
995.90	Systemic inflammatory response syndrome, unspecified	ICD-9-CM Diagnosis
995.91	Sepsis	ICD-9-CM Diagnosis
995.92	Severe sepsis	ICD-9-CM Diagnosis
079.1	ECHO virus infection in conditions classified elsewhere and of unspecified site	ICD-9-CM Diagnosis
079.2	Coxsackievirus infection in conditions classified elsewhere and of unspecified site	ICD-9-CM Diagnosis
079.3	Rhinovirus infection in conditions classified elsewhere and of unspecified site	ICD-9-CM Diagnosis
286.9	Other and unspecified coagulation defects	ICD-9-CM Diagnosis
287.5	Unspecified thrombocytopenia	ICD-9-CM Diagnosis
772	Fetal and neonatal hemorrhage	ICD-9-CM Diagnosis
772.0	Fetal blood loss affecting newborn	ICD-9-CM Diagnosis
772.1	Intraventricular hemorrhage	ICD-9-CM Diagnosis
772.10	Intraventricular hemorrhage, unspecified grade	ICD-9-CM Diagnosis
772.11	Intraventricular hemorrhage, Grade I	ICD-9-CM Diagnosis
772.12	Intraventricular hemorrhage, Grade II	ICD-9-CM Diagnosis
772.13	Intraventricular hemorrhage, Grade III	ICD-9-CM Diagnosis
772.14	Intraventricular hemorrhage, Grade IV	ICD-9-CM Diagnosis
772.2	Fetal and neonatal subarachnoid hemorrhage of newborn	ICD-9-CM Diagnosis
772.4	Fetal and neonatal gastrointestinal hemorrhage	ICD-9-CM Diagnosis
772.5	Fetal and neonatal adrenal hemorrhage	ICD-9-CM Diagnosis
772.6	Fetal and neonatal cutaneous hemorrhage	ICD-9-CM Diagnosis
772.8	Other specified hemorrhage of fetus or newborn	ICD-9-CM Diagnosis
772.9	Unspecified hemorrhage of newborn	ICD-9-CM Diagnosis
776	Hematological disorders of newborn	ICD-9-CM Diagnosis
776.0	Hemorrhagic disease of newborn	ICD-9-CM Diagnosis
776.1	Transient neonatal thrombocytopenia	ICD-9-CM Diagnosis
776.2	Disseminated intravascular coagulation in newborn	ICD-9-CM Diagnosis
776.3	Other transient neonatal disorders of coagulation	ICD-9-CM Diagnosis
776.4	Polycythemia neonatorum	ICD-9-CM Diagnosis
776.8	Other specified transient hematological disorders of fetus or newborn	ICD-9-CM Diagnosis
776.9	Unspecified hematological disorder specific to newborn	ICD-9-CM Diagnosis
790.4	Nonspecific elevation of levels of transaminase or lactic acid dehydrogenase (LDH)	ICD-9-CM Diagnosis
570	Acute and subacute necrosis of liver	ICD-9-CM Diagnosis
428.9	Unspecified heart failure	ICD-9-CM Diagnosis
427	Cardiac dysrhythmias	ICD-9-CM Diagnosis
427.0	Paroxysmal supraventricular tachycardia	ICD-9-CM Diagnosis
427.1	Paroxysmal ventricular tachycardia	ICD-9-CM Diagnosis
427.2	Unspecified paroxysmal tachycardia	ICD-9-CM Diagnosis

Appendix A. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Neonatal Enteroviral Sepsis in this Request

Code	Description	Code Type
427.3	Atrial fibrillation and flutter	ICD-9-CM Diagnosis
427.31	Atrial fibrillation	ICD-9-CM Diagnosis
427.32	Atrial flutter	ICD-9-CM Diagnosis
427.4	Ventricular fibrillation and flutter	ICD-9-CM Diagnosis
427.41	Ventricular fibrillation	ICD-9-CM Diagnosis
427.42	Ventricular flutter	ICD-9-CM Diagnosis
427.5	Cardiac arrest	ICD-9-CM Diagnosis
427.6	Premature beats	ICD-9-CM Diagnosis
427.60	Unspecified premature beats	ICD-9-CM Diagnosis
427.61	Supraventricular premature beats	ICD-9-CM Diagnosis
427.69	Other premature beats	ICD-9-CM Diagnosis
427.8	Other specified cardiac dysrhythmias	ICD-9-CM Diagnosis
427.81	Sinoatrial node dysfunction	ICD-9-CM Diagnosis
427.89	Other specified cardiac dysrhythmias	ICD-9-CM Diagnosis
427.9	Unspecified cardiac dysrhythmia	ICD-9-CM Diagnosis
422.0	Acute myocarditis in diseases classified elsewhere	ICD-9-CM Diagnosis
ICD-10-CM		
A41.89	Other specified sepsis	ICD-10-CM Diagnosis
A41.9	Sepsis, unspecified organism	ICD-10-CM Diagnosis
R65.20	Severe sepsis without septic shock	ICD-10-CM Diagnosis
R65.21	Severe sepsis with septic shock	ICD-10-CM Diagnosis
B97.11	Coxsackievirus as the cause of diseases classified elsewhere	ICD-10-CM Diagnosis
B97.12	Echovirus as the cause of diseases classified elsewhere	ICD-10-CM Diagnosis
J20.3	Acute bronchitis due to coxsackievirus	ICD-10-CM Diagnosis
J20.6	Acute bronchitis due to rhinovirus	ICD-10-CM Diagnosis
J20.7	Acute bronchitis due to echovirus	ICD-10-CM Diagnosis
B97.10	Unspecified enterovirus as the cause of diseases classified elsewhere	ICD-10-CM Diagnosis
D68.8	Other specified coagulation defects	ICD-10-CM Diagnosis
D68.9	Coagulation defect, unspecified	ICD-10-CM Diagnosis
D69.6	Thrombocytopenia, unspecified	ICD-10-CM Diagnosis
P51.0	Massive umbilical hemorrhage of newborn	ICD-10-CM Diagnosis
P51.8	Other umbilical hemorrhages of newborn	ICD-10-CM Diagnosis
P51.9	Umbilical hemorrhage of newborn, unspecified	ICD-10-CM Diagnosis
P52.0	Intraventricular (nontraumatic) hemorrhage, grade 1, of newborn	ICD-10-CM Diagnosis
P52.1	Intraventricular (nontraumatic) hemorrhage, grade 2, of newborn	ICD-10-CM Diagnosis
P52.21	Intraventricular (nontraumatic) hemorrhage, grade 3, of newborn	ICD-10-CM Diagnosis
P52.22	Intraventricular (nontraumatic) hemorrhage, grade 4, of newborn	ICD-10-CM Diagnosis
P52.3	Unspecified intraventricular (nontraumatic) hemorrhage of newborn	ICD-10-CM Diagnosis
P52.5	Subarachnoid (nontraumatic) hemorrhage of newborn	ICD-10-CM Diagnosis
P54.0	Neonatal hematemesis	ICD-10-CM Diagnosis
P54.1	Neonatal melena	ICD-10-CM Diagnosis
P54.2	Neonatal rectal hemorrhage	ICD-10-CM Diagnosis

Appendix A. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Neonatal Enteroviral Sepsis in this Request

Code	Description	Code Type
P54.3	Other neonatal gastrointestinal hemorrhage	ICD-10-CM Diagnosis
P54.4	Neonatal adrenal hemorrhage	ICD-10-CM Diagnosis
P54.5	Neonatal cutaneous hemorrhage	ICD-10-CM Diagnosis
P54.6	Neonatal vaginal hemorrhage	ICD-10-CM Diagnosis
P54.8	Other specified neonatal hemorrhages	ICD-10-CM Diagnosis
P54.9	Neonatal hemorrhage, unspecified	ICD-10-CM Diagnosis
P53	Hemorrhagic disease of newborn	ICD-10-CM Diagnosis
P60	Disseminated intravascular coagulation of newborn	ICD-10-CM Diagnosis
P61.0	Transient neonatal thrombocytopenia	ICD-10-CM Diagnosis
P61.1	Polycythemia neonatorum	ICD-10-CM Diagnosis
P61.3	Congenital anemia from fetal blood loss	ICD-10-CM Diagnosis
P61.4	Other congenital anemias, not elsewhere classified	ICD-10-CM Diagnosis
P61.6	Other transient neonatal disorders of coagulation	ICD-10-CM Diagnosis
P61.8	Other specified perinatal hematological disorders	ICD-10-CM Diagnosis
P61.9	Perinatal hematological disorder, unspecified	ICD-10-CM Diagnosis
R74.0	Nonspecific elevation of levels of transaminase and lactic acid dehydrogenase [LDH]	ICD-10-CM Diagnosis
K72.00	Acute and subacute hepatic failure without coma	ICD-10-CM Diagnosis
K72.01	Acute and subacute hepatic failure with coma	ICD-10-CM Diagnosis
K76.2	Central hemorrhagic necrosis of liver	ICD-10-CM Diagnosis
I50.810	Right heart failure, unspecified	ICD-10-CM Diagnosis
I50.811	Acute right heart failure	ICD-10-CM Diagnosis
I50.812	Chronic right heart failure	ICD-10-CM Diagnosis
I50.813	Acute on chronic right heart failure	ICD-10-CM Diagnosis
I50.82	Biventricular heart failure	ICD-10-CM Diagnosis
I50.83	High output heart failure	ICD-10-CM Diagnosis
I50.84	End stage heart failure	ICD-10-CM Diagnosis
I50.89	Other heart failure	ICD-10-CM Diagnosis
I50.9	Heart failure, unspecified	ICD-10-CM Diagnosis
P29.0	Neonatal cardiac failure	ICD-10-CM Diagnosis
P29.2	Neonatal hypertension	ICD-10-CM Diagnosis
P29.4	Transient myocardial ischemia in newborn	ICD-10-CM Diagnosis
P29.89	Other cardiovascular disorders originating in the perinatal period	ICD-10-CM Diagnosis
P29.9	Cardiovascular disorder originating in the perinatal period, unspecified	ICD-10-CM Diagnosis
P96.0	Congenital renal failure	ICD-10-CM Diagnosis
I46.2	Cardiac arrest due to underlying cardiac condition	ICD-10-CM Diagnosis
I46.8	Cardiac arrest due to other underlying condition	ICD-10-CM Diagnosis
I46.9	Cardiac arrest, cause unspecified	ICD-10-CM Diagnosis
I47.0	Re-entry ventricular arrhythmia	ICD-10-CM Diagnosis
I47.1	Supraventricular tachycardia	ICD-10-CM Diagnosis
I47.2	Ventricular tachycardia	ICD-10-CM Diagnosis
I47.9	Paroxysmal tachycardia, unspecified	ICD-10-CM Diagnosis
I48.0	Paroxysmal atrial fibrillation	ICD-10-CM Diagnosis

Appendix A. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Neonatal Enteroviral Sepsis in this Request

Code	Description	Code Type
I48.1	Persistent atrial fibrillation	ICD-10-CM Diagnosis
I48.2	Chronic atrial fibrillation	ICD-10-CM Diagnosis
I48.3	Typical atrial flutter	ICD-10-CM Diagnosis
I48.4	Atypical atrial flutter	ICD-10-CM Diagnosis
I48.91	Unspecified atrial fibrillation	ICD-10-CM Diagnosis
I48.92	Unspecified atrial flutter	ICD-10-CM Diagnosis
I49.01	Ventricular fibrillation	ICD-10-CM Diagnosis
I49.02	Ventricular flutter	ICD-10-CM Diagnosis
I49.1	Atrial premature depolarization	ICD-10-CM Diagnosis
I49.2	Junctional premature depolarization	ICD-10-CM Diagnosis
I49.3	Ventricular premature depolarization	ICD-10-CM Diagnosis
I49.40	Unspecified premature depolarization	ICD-10-CM Diagnosis
I49.49	Other premature depolarization	ICD-10-CM Diagnosis
I49.5	Sick sinus syndrome	ICD-10-CM Diagnosis
I49.8	Other specified cardiac arrhythmias	ICD-10-CM Diagnosis
I49.9	Cardiac arrhythmia, unspecified	ICD-10-CM Diagnosis
R00.1	Bradycardia, unspecified	ICD-10-CM Diagnosis
A18.84	Tuberculosis of heart	ICD-10-CM Diagnosis
I41	Myocarditis in diseases classified elsewhere	ICD-10-CM Diagnosis

Appendix B. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Sepsis in this Request

Code	Description	Code Type
ICD-9-CM		
771.81	Septicemia (sepsis) of newborn	ICD-9-CM Diagnosis
038	Septicemia	ICD-9-CM Diagnosis
038.8	Other specified septicemia	ICD-9-CM Diagnosis
038.9	Unspecified septicemia	ICD-9-CM Diagnosis
995.90	Systemic inflammatory response syndrome, unspecified	ICD-9-CM Diagnosis
995.91	Sepsis	ICD-9-CM Diagnosis
995.92	Severe sepsis	ICD-9-CM Diagnosis
ICD-10-CM		
A41.89	Other specified sepsis	ICD-10-CM Diagnosis
A41.9	Sepsis, unspecified organism	ICD-10-CM Diagnosis
R65.20	Severe sepsis without septic shock	ICD-10-CM Diagnosis
R65.21	Severe sepsis with septic shock	ICD-10-CM Diagnosis

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Enteroviral Infection in this Request

Code	Description	Code Type
ICD-9-CM		
079.1	ECHO virus infection in conditions classified elsewhere and of unspecified site	ICD-9-CM Diagnosis
079.2	Coxsackievirus infection in conditions classified elsewhere and of unspecified site	ICD-9-CM Diagnosis
079.3	Rhinovirus infection in conditions classified elsewhere and of unspecified site	ICD-9-CM Diagnosis
ICD-10-CM		
B97.11	Coxsackievirus as the cause of diseases classified elsewhere	ICD-10-CM Diagnosis
B97.12	Echovirus as the cause of diseases classified elsewhere	ICD-10-CM Diagnosis
J20.3	Acute bronchitis due to coxsackievirus	ICD-10-CM Diagnosis
J20.6	Acute bronchitis due to rhinovirus	ICD-10-CM Diagnosis
J20.7	Acute bronchitis due to echovirus	ICD-10-CM Diagnosis
B97.10	Unspecified enterovirus as the cause of diseases classified elsewhere	ICD-10-CM Diagnosis

Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Coagulopathies in this Request

Code	Description	Code Type
ICD-9-CM		
286.9	Other and unspecified coagulation defects	ICD-9-CM Diagnosis
287.5	Unspecified thrombocytopenia	ICD-9-CM Diagnosis
772	Fetal and neonatal hemorrhage	ICD-9-CM Diagnosis
772.0	Fetal blood loss affecting newborn	ICD-9-CM Diagnosis
772.1	Intraventricular hemorrhage	ICD-9-CM Diagnosis
772.10	Intraventricular hemorrhage, unspecified grade	ICD-9-CM Diagnosis
772.11	Intraventricular hemorrhage, Grade I	ICD-9-CM Diagnosis
772.12	Intraventricular hemorrhage, Grade II	ICD-9-CM Diagnosis
772.13	Intraventricular hemorrhage, Grade III	ICD-9-CM Diagnosis
772.14	Intraventricular hemorrhage, Grade IV	ICD-9-CM Diagnosis
772.2	Fetal and neonatal subarachnoid hemorrhage of newborn	ICD-9-CM Diagnosis
772.4	Fetal and neonatal gastrointestinal hemorrhage	ICD-9-CM Diagnosis
772.5	Fetal and neonatal adrenal hemorrhage	ICD-9-CM Diagnosis
772.6	Fetal and neonatal cutaneous hemorrhage	ICD-9-CM Diagnosis
772.8	Other specified hemorrhage of fetus or newborn	ICD-9-CM Diagnosis
772.9	Unspecified hemorrhage of newborn	ICD-9-CM Diagnosis
776	Hematological disorders of newborn	ICD-9-CM Diagnosis
776.0	Hemorrhagic disease of newborn	ICD-9-CM Diagnosis
776.1	Transient neonatal thrombocytopenia	ICD-9-CM Diagnosis
776.2	Disseminated intravascular coagulation in newborn	ICD-9-CM Diagnosis
776.3	Other transient neonatal disorders of coagulation	ICD-9-CM Diagnosis
776.4	Polycythemia neonatorum	ICD-9-CM Diagnosis
776.8	Other specified transient hematological disorders of fetus or newborn	ICD-9-CM Diagnosis
776.9	Unspecified hematological disorder specific to newborn	ICD-9-CM Diagnosis
ICD-10-CM		
D68.8	Other specified coagulation defects	ICD-10-CM Diagnosis
D68.9	Coagulation defect, unspecified	ICD-10-CM Diagnosis
D69.6	Thrombocytopenia, unspecified	ICD-10-CM Diagnosis
P51.0	Massive umbilical hemorrhage of newborn	ICD-10-CM Diagnosis
P51.8	Other umbilical hemorrhages of newborn	ICD-10-CM Diagnosis
P51.9	Umbilical hemorrhage of newborn, unspecified	ICD-10-CM Diagnosis
P52.0	Intraventricular (nontraumatic) hemorrhage, grade 1, of newborn	ICD-10-CM Diagnosis
P52.1	Intraventricular (nontraumatic) hemorrhage, grade 2, of newborn	ICD-10-CM Diagnosis
P52.21	Intraventricular (nontraumatic) hemorrhage, grade 3, of newborn	ICD-10-CM Diagnosis
P52.22	Intraventricular (nontraumatic) hemorrhage, grade 4, of newborn	ICD-10-CM Diagnosis
P52.3	Unspecified intraventricular (nontraumatic) hemorrhage of newborn	ICD-10-CM Diagnosis
P52.5	Subarachnoid (nontraumatic) hemorrhage of newborn	ICD-10-CM Diagnosis
P54.0	Neonatal hematemesis	ICD-10-CM Diagnosis
P54.1	Neonatal melena	ICD-10-CM Diagnosis
P54.2	Neonatal rectal hemorrhage	ICD-10-CM Diagnosis
P54.3	Other neonatal gastrointestinal hemorrhage	ICD-10-CM Diagnosis

Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Coagulopathies in this Request

Code	Description	Code Type
P54.4	Neonatal adrenal hemorrhage	ICD-10-CM Diagnosis
P54.5	Neonatal cutaneous hemorrhage	ICD-10-CM Diagnosis
P54.6	Neonatal vaginal hemorrhage	ICD-10-CM Diagnosis
P54.8	Other specified neonatal hemorrhages	ICD-10-CM Diagnosis
P54.9	Neonatal hemorrhage, unspecified	ICD-10-CM Diagnosis
P53	Hemorrhagic disease of newborn	ICD-10-CM Diagnosis
P60	Disseminated intravascular coagulation of newborn	ICD-10-CM Diagnosis
P61.0	Transient neonatal thrombocytopenia	ICD-10-CM Diagnosis
P61.1	Polycythemia neonatorum	ICD-10-CM Diagnosis
P61.3	Congenital anemia from fetal blood loss	ICD-10-CM Diagnosis
P61.4	Other congenital anemias, not elsewhere classified	ICD-10-CM Diagnosis
P61.6	Other transient neonatal disorders of coagulation	ICD-10-CM Diagnosis
P61.8	Other specified perinatal hematological disorders	ICD-10-CM Diagnosis
P61.9	Perinatal hematological disorder, unspecified	ICD-10-CM Diagnosis

Appendix E. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Liver Dysfunctions in this Request

Code	Description	Code Type
ICD-9-CM		
790.4	Nonspecific elevation of levels of transaminase or lactic acid dehydrogenase (LDH)	ICD-9-CM Diagnosis
570	Acute and subacute necrosis of liver	ICD-9-CM Diagnosis
ICD-10-CM		
R74.0	Nonspecific elevation of levels of transaminase and lactic acid dehydrogenase [LDH]	ICD-10-CM Diagnosis
K72.00	Acute and subacute hepatic failure without coma	ICD-10-CM Diagnosis
K72.01	Acute and subacute hepatic failure with coma	ICD-10-CM Diagnosis
K76.2	Central hemorrhagic necrosis of liver	ICD-10-CM Diagnosis

Appendix F. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Cardiac Dysfunctions in this Request

Code	Description	Code Type
ICD-9-CM		
428.9	Unspecified heart failure	ICD-9-CM Diagnosis
422.0	Acute myocarditis in diseases classified elsewhere	ICD-9-CM Diagnosis
427	Cardiac dysrhythmias	ICD-9-CM Diagnosis
427.0	Paroxysmal supraventricular tachycardia	ICD-9-CM Diagnosis
427.1	Paroxysmal ventricular tachycardia	ICD-9-CM Diagnosis
427.2	Unspecified paroxysmal tachycardia	ICD-9-CM Diagnosis
427.3	Atrial fibrillation and flutter	ICD-9-CM Diagnosis
427.31	Atrial fibrillation	ICD-9-CM Diagnosis
427.32	Atrial flutter	ICD-9-CM Diagnosis
427.4	Ventricular fibrillation and flutter	ICD-9-CM Diagnosis
427.41	Ventricular fibrillation	ICD-9-CM Diagnosis
427.42	Ventricular flutter	ICD-9-CM Diagnosis
427.5	Cardiac arrest	ICD-9-CM Diagnosis
427.6	Premature beats	ICD-9-CM Diagnosis
427.60	Unspecified premature beats	ICD-9-CM Diagnosis
427.61	Supraventricular premature beats	ICD-9-CM Diagnosis
427.69	Other premature beats	ICD-9-CM Diagnosis
427.8	Other specified cardiac dysrhythmias	ICD-9-CM Diagnosis
427.81	Sinoatrial node dysfunction	ICD-9-CM Diagnosis
427.89	Other specified cardiac dysrhythmias	ICD-9-CM Diagnosis
427.9	Unspecified cardiac dysrhythmia	ICD-9-CM Diagnosis
ICD-10-CM		
I50.810	Right heart failure, unspecified	ICD-10-CM Diagnosis
I50.811	Acute right heart failure	ICD-10-CM Diagnosis
I50.812	Chronic right heart failure	ICD-10-CM Diagnosis
I50.813	Acute on chronic right heart failure	ICD-10-CM Diagnosis
I50.82	Biventricular heart failure	ICD-10-CM Diagnosis
I50.83	High output heart failure	ICD-10-CM Diagnosis
I50.84	End stage heart failure	ICD-10-CM Diagnosis
I50.89	Other heart failure	ICD-10-CM Diagnosis
I50.9	Heart failure, unspecified	ICD-10-CM Diagnosis
P29.0	Neonatal cardiac failure	ICD-10-CM Diagnosis
P29.2	Neonatal hypertension	ICD-10-CM Diagnosis
P29.4	Transient myocardial ischemia in newborn	ICD-10-CM Diagnosis
P29.89	Other cardiovascular disorders originating in the perinatal period	ICD-10-CM Diagnosis
P29.9	Cardiovascular disorder originating in the perinatal period, unspecified	ICD-10-CM Diagnosis
P96.0	Congenital renal failure	ICD-10-CM Diagnosis
I46.2	Cardiac arrest due to underlying cardiac condition	ICD-10-CM Diagnosis
I46.8	Cardiac arrest due to other underlying condition	ICD-10-CM Diagnosis
I46.9	Cardiac arrest, cause unspecified	ICD-10-CM Diagnosis
I47.0	Re-entry ventricular arrhythmia	ICD-10-CM Diagnosis

Appendix F. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes used to Define Cardiac Dysfunctions in this Request

Code	Description	Code Type
I47.1	Supraventricular tachycardia	ICD-10-CM Diagnosis
I47.2	Ventricular tachycardia	ICD-10-CM Diagnosis
I47.9	Paroxysmal tachycardia, unspecified	ICD-10-CM Diagnosis
I48.0	Paroxysmal atrial fibrillation	ICD-10-CM Diagnosis
I48.1	Persistent atrial fibrillation	ICD-10-CM Diagnosis
I48.2	Chronic atrial fibrillation	ICD-10-CM Diagnosis
I48.3	Typical atrial flutter	ICD-10-CM Diagnosis
I48.4	Atypical atrial flutter	ICD-10-CM Diagnosis
I48.91	Unspecified atrial fibrillation	ICD-10-CM Diagnosis
I48.92	Unspecified atrial flutter	ICD-10-CM Diagnosis
I49.01	Ventricular fibrillation	ICD-10-CM Diagnosis
I49.02	Ventricular flutter	ICD-10-CM Diagnosis
I49.1	Atrial premature depolarization	ICD-10-CM Diagnosis
I49.2	Junctional premature depolarization	ICD-10-CM Diagnosis
I49.3	Ventricular premature depolarization	ICD-10-CM Diagnosis
I49.40	Unspecified premature depolarization	ICD-10-CM Diagnosis
I49.49	Other premature depolarization	ICD-10-CM Diagnosis
I49.5	Sick sinus syndrome	ICD-10-CM Diagnosis
I49.8	Other specified cardiac arrhythmias	ICD-10-CM Diagnosis
I49.9	Cardiac arrhythmia, unspecified	ICD-10-CM Diagnosis
R00.1	Bradycardia, unspecified	ICD-10-CM Diagnosis
A18.84	Tuberculosis of heart	ICD-10-CM Diagnosis
I41	Myocarditis in diseases classified elsewhere	ICD-10-CM Diagnosis

Appendix G. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology, Fourth Edition (CPT-4), and Healthcare Common Procedure Coding System (HCPCS) Procedure Codes used to Define Intravenous Immune Globulin Exposure in this Request

Code	Description	Code Type
CPT-4		
90281	Immune globulin (Ig), human, for intramuscular use	CPT-4 Procedure
90283	Immune globulin (IgIV), human, for intravenous use	CPT-4 Procedure
90284	Immune globulin (SCIg), human, for use in subcutaneous infusions, 100 mg, each	CPT-4 Procedure
90399	Unlisted immune globulin	CPT-4 Procedure
HCPCS		
C9270	Injection, immune globulin (Gammaplex), intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
J0850	Injection, cytomegalovirus immune globulin intravenous (human), per vial	HCPCS Procedure
J1459	Injection, immune globulin (Privigen), intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
J1460	Injection, gamma globulin, intramuscular, 1 cc	HCPCS Procedure
J1470	Injection, gamma globulin, intramuscular, 2 cc	HCPCS Procedure
J1480	Injection, gamma globulin, intramuscular, 3 cc	HCPCS Procedure
J1490	Injection, gamma globulin, intramuscular, 4 cc	HCPCS Procedure
J1500	Injection, gamma globulin, intramuscular, 5 cc	HCPCS Procedure
J1510	Injection, gamma globulin, intramuscular, 6 cc	HCPCS Procedure
J1520	Injection, gamma globulin, intramuscular, 7 cc	HCPCS Procedure
J1530	Injection, gamma globulin, intramuscular, 8 cc	HCPCS Procedure
J1540	Injection, gamma globulin, intramuscular, 9 cc	HCPCS Procedure
J1550	Injection, gamma globulin, intramuscular, 10 cc	HCPCS Procedure
J1557	Injection, immune globulin (Gammaplex), intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
J1559	Injection, immune globulin (Hizentra), 100 mg	HCPCS Procedure
J1560	Injection, gamma globulin, intramuscular, over 10 cc	HCPCS Procedure
J1561	Injection, immune globulin (Gamunex/Gamunex-C/Gammaked), non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
J1562	Injection, immune globulin (Vivaglobin), 100 mg. [Code effective date: 20080101]	HCPCS Procedure
J1563	Injection, immune globulin, intravenous, 1g	HCPCS Procedure
J1564	Injection, immune globulin, 10 mg	HCPCS Procedure
J1566	Injection, immune globulin, intravenous, lyophilized (e.g. powder), 500 mg	HCPCS Procedure
J1567	Injection, immune globulin, intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
J1568	Injection, immune globulin (Octagam), intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
J1569	Injection, immune globulin (Gammagard Liquid), intravenous, non-lyophilized, (e.g. liquid), 500 mg	HCPCS Procedure
J1572	Injection, immune globulin (Flebogamma), intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
J1573	Injection, hepatitis B immune globulin (Hepagam B), intravenous, 0.5 ml	HCPCS Procedure
J1599	Injection, immune globulin, intravenous, non-lyophilized (e.g. liquid), not otherwise specified, 500 mg	HCPCS Procedure
J2788	Injection, Rho D immune globulin, human, minidose, 50 mcg (250 i.u.)	HCPCS Procedure
J2790	Injection, Rho D immune globulin, human, full dose, 300 mcg (1500 i.u.)	HCPCS Procedure

Appendix G. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology, Fourth Edition (CPT-4), and Healthcare Common Procedure Coding System (HCPCS) Procedure Codes used to Define Intravenous Immune Globulin Exposure in this Request

Code	Description	Code Type
J2792	Injection, Rho D immune globulin, intravenous, human, solvent detergent, 100 IU	HCPCS Procedure
P9014	Globulin, gamma, 1 mL	HCPCS Procedure
Q4087	Injection, immune globulin (Octagam), intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
Q4088	Injection, immune globulin (Gammagard Liquid), intravenous, non-lyophilized, (e.g. liquid), 500 mg	HCPCS Procedure
Q4089	Injection, Rho(D) immune globulin (human), (Rhophylac), intramuscular or intravenous, 100 IU	HCPCS Procedure
Q4090	Injection, hepatitis B immune globulin (HepaGam B), intramuscular, 0.5 ml	HCPCS Procedure
Q4091	Injection, immune globulin (Flebogamma), intravenous, non-lyophilized, (e.g. liquid), 500 mg	HCPCS Procedure
Q4092	Injection, immune globulin (Gamunex), intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
Q4097	Injection, immune globulin (Privigen), intravenous, non-lyophilized (e.g. liquid), 500 mg	HCPCS Procedure
Q9941	Injection, immune globulin, intravenous, lyophilized, 1g	HCPCS Procedure
Q9942	Injection, immune globulin, intravenous, lyophilized, 10 mg	HCPCS Procedure
Q9943	Injection, immune globulin, intravenous, non-lyophilized, 1g	HCPCS Procedure
Q9944	Injection, immune globulin, intravenous, non-lyophilized, 10 mg	HCPCS Procedure
S9545	Administration of immune globulin, intravenously, in the home setting, including all nursing care, equipment, and supplies; per diem	HCPCS Procedure
ICD-9-CM		
99.14	Injection or infusion of immunoglobulin	ICD-9-CM Procedure
ICD-10-PCS		
30230S1	Transfusion of Nonautologous Globulin into Peripheral Vein, Open Approach	ICD-10-PCS Procedure
30233S1	Transfusion of Nonautologous Globulin into Peripheral Vein, Percutaneous Approach	ICD-10-PCS Procedure
30240S1	Transfusion of Nonautologous Globulin into Central Vein, Open Approach	ICD-10-PCS Procedure
30243S1	Transfusion of Nonautologous Globulin into Central Vein, Percutaneous Approach	ICD-10-PCS Procedure
30250S1	Transfusion of Nonautologous Globulin into Peripheral Artery, Open Approach	ICD-10-PCS Procedure
30253S1	Transfusion of Nonautologous Globulin into Peripheral Artery, Percutaneous Approach	ICD-10-PCS Procedure
30260S1	Transfusion of Nonautologous Globulin into Central Artery, Open Approach	ICD-10-PCS Procedure
30263S1	Transfusion of Nonautologous Globulin into Central Artery, Percutaneous Approach	ICD-10-PCS Procedure

Appendix H. List of Generic Drug Names used to Define Intravenous Immune Globulin Exposure in this Request

Generic Name	Code Type
Intravenous Immune Globulin	
IMMUNE GLOBULIN,GAMM(IGG)/GLYCINE/GLUCOSE/IGA 0 TO 50 MCG/ML	Inpatient Prescription
IMMUNE GLOBULIN,GAMM(IGG)/GLYCINE/IGA GREATER THAN 50 MCG/ML	Inpatient Prescription
IMMUNE GLOBULIN,GAMM(IGG)/MALTOSE/IGA GREATER THAN 50 MCG/ML	Inpatient Prescription
IMMUNE GLOBULIN,GAMM(IGG)/SUCROSE/IGA GREATER THAN 50 MCG/ML	Inpatient Prescription
IMMUNE GLOBULIN,GAMMA (IGG)/GLYCINE/IGA 0 TO 50 MCG/ML	Inpatient Prescription
IMMUNE GLOBULIN,GAMMA (IGG)/PROLINE/IGA 0 TO 50 MCG/ML	Inpatient Prescription
IMMUNE GLOBULIN,GAMMA (IGG)/SORBITOL/IGA 0 TO 50 MCG/ML	Inpatient Prescription
IMMUNE GLOBULIN,GAMMA CAPRYLATE (IGG)	Inpatient Prescription
IMMUNE GLOBULIN,GAMMA(IGG)	Inpatient Prescription
IMMUNE GLOBULIN,GAMMA(IGG)/GLYCINE	Inpatient Prescription
IMMUNE GLOBULIN,GAMMA(IGG)/GLYCINE/IGA AVERAGE 46 MCG/ML	Inpatient Prescription

Appendix I. List of Generic Drug Names used to Define Exclusion Criteria in this Request

Drug Type	Generic Name	Code Type
	Antibiotics	
Antibiotic	AMIKACIN SULFATE	Inpatient Prescription
Antibiotic	AMIKACIN SULFATE/PF	Inpatient Prescription
Antibiotic	AMPICILLIN SODIUM	Inpatient Prescription
Antibiotic	AMPICILLIN SODIUM/SULBACTAM SODIUM	Inpatient Prescription
Antibiotic	AZITHROMYCIN	Inpatient Prescription
Antibiotic	AZITHROMYCIN HYDROGEN CITRATE	Inpatient Prescription
Antibiotic	AZTREONAM/DEXTROSE-WATER	Inpatient Prescription
Antibiotic	CEFAMANDOLE NAFATE/DEXTROSE 5 % IN WATER	Inpatient Prescription
Antibiotic	CEFAZOLIN SODIUM	Inpatient Prescription
Antibiotic	CEFAZOLIN SODIUM IN 0.9 % SODIUM CHLORIDE	Inpatient Prescription
Antibiotic	CEFAZOLIN SODIUM/DEXTROSE 5 % IN WATER	Inpatient Prescription
Antibiotic	CEFAZOLIN SODIUM/DEXTROSE, ISO-OSMOTIC	Inpatient Prescription
Antibiotic	CEFAZOLIN SODIUM/WATER FOR INJECTION,STERILE	Inpatient Prescription
Antibiotic	CEFEPIME HCL	Inpatient Prescription
Antibiotic	CEFEPIME HCL IN DEXTROSE 5 % IN WATER	Inpatient Prescription
Antibiotic	CEFEPIME HCL IN ISO-OSMOTIC DEXTROSE	Inpatient Prescription
Antibiotic	CEFOPERAZONE SODIUM	Inpatient Prescription
Antibiotic	CEFOTAXIME SODIUM	Inpatient Prescription
Antibiotic	CEFOTAXIME SODIUM/DEXTROSE, ISO-OSMOTIC	Inpatient Prescription
Antibiotic	CEFOTETAN DISODIUM	Inpatient Prescription
Antibiotic	CEFOTETAN DISODIUM IN ISO-OSMOTIC DEXTROSE	Inpatient Prescription
Antibiotic	CEFOTETAN IN DEXTROSE	Inpatient Prescription
Antibiotic	CEFOXITIN SODIUM	Inpatient Prescription
Antibiotic	CEFOXITIN SODIUM/DEXTROSE 5 % IN WATER	Inpatient Prescription
Antibiotic	CEFOXITIN SODIUM/DEXTROSE, ISO-OSMOTIC	Inpatient Prescription
Antibiotic	CEFTAROLINE FOSAMIL ACETATE	Inpatient Prescription
Antibiotic	CEFTAZIDIME	Inpatient Prescription
Antibiotic	CEFTAZIDIME IN DEXTROSE 5% AND WATER	Inpatient Prescription
Antibiotic	CEFTAZIDIME IN DEXTROSE, ISO-OSMOTIC	Inpatient Prescription
Antibiotic	CEFTAZIDIME SODIUM IN ISO-OSMOTIC DEXTROSE	Inpatient Prescription
Antibiotic	CEFTAZIDIME/ARGININE	Inpatient Prescription
Antibiotic	CEFTAZIDIME/AVIBACTAM SODIUM	Inpatient Prescription
Antibiotic	CEFTIZOXIME SODIUM	Inpatient Prescription
Antibiotic	CEFTIZOXIME SODIUM/DEXTROSE, ISO-OSMOTIC	Inpatient Prescription
Antibiotic	CEFTOLOZANE SULFATE/TAZOBACTAM SODIUM	Inpatient Prescription
Antibiotic	CEFTRIAXONE SODIUM	Inpatient Prescription
Antibiotic	CEFTRIAXONE SODIUM IN ISO-OSMOTIC DEXTROSE	Inpatient Prescription
Antibiotic	CEFUROXIME SODIUM	Inpatient Prescription
Antibiotic	CEFUROXIME SODIUM/DEXTROSE, ISO-OSMOTIC	Inpatient Prescription
Antibiotic	CEFUROXIME SODIUM/WATER FOR INJECTION,STERILE	Inpatient Prescription
Antibiotic	CEPHALOTHIN SODIUM/DEXTROSE 5 % IN WATER	Inpatient Prescription
Antibiotic	DORIPENEM	Inpatient Prescription
Antibiotic	ERTAPENEM SODIUM	Inpatient Prescription

Appendix I. List of Generic Drug Names used to Define Exclusion Criteria in this Request

Drug Type	Generic Name	Code Type
Antibiotic	ERYTHROMYCIN LACTOBIONATE	Inpatient Prescription
Antibiotic	GENTAMICIN SULFATE IN SODIUM CHLORIDE, ISO-OSMOTIC	Inpatient Prescription
Antibiotic	GENTAMICIN SULFATE/PF	Inpatient Prescription
Antibiotic	GENTAMICIN SULFATE/SODIUM CHLORIDE	Inpatient Prescription
Antibiotic	IMIPENEM/CILASTATIN SODIUM	Inpatient Prescription
Antibiotic	ITRACONAZOLE	Inpatient Prescription
Antibiotic	MEROPENEM	Inpatient Prescription
Antibiotic	MEROPENEM IN 0.9 % SODIUM CHLORIDE	Inpatient Prescription
Antibiotic	PENICILLIN G POTASSIUM IN 0.9 % SODIUM CHLORIDE	Inpatient Prescription
Antibiotic	PENICILLIN G POTASSIUM/DEXTROSE-WATER	Inpatient Prescription
Antibiotic	PIPERACILLIN AND TAZOBACTAM IN DEXTROSE, ISO-OSMOTIC	Inpatient Prescription
Antibiotic	PIPERACILLIN SODIUM	Inpatient Prescription
Antibiotic	PIPERACILLIN SODIUM/TAZOBACTAM SODIUM	Inpatient Prescription
Antibiotic	TOBRAMYCIN SULFATE	Inpatient Prescription
Antibiotic	TOBRAMYCIN SULFATE/SODIUM CHLORIDE	Inpatient Prescription
Antibiotic	VANCOMYCIN HCL	Inpatient Prescription
Antibiotic	VANCOMYCIN HCL/DEXTROSE 5 % IN WATER	Inpatient Prescription
Antibiotic	VANCOMYCIN IN 0.9 % SODIUM CHLORIDE	Inpatient Prescription
Antivirals		
Antiviral	ACYCLOVIR SODIUM	Inpatient Prescription
Antiviral	ACYCLOVIR SODIUM/DEXTROSE 5 % IN WATER	Inpatient Prescription
Antifungals		
Antifungal	AMPHOTERICIN B CHOLESTERYL SULFATE	Inpatient Prescription
Antifungal	AMPHOTERICIN B LIPID COMPLEX	Inpatient Prescription
Antifungal	AMPHOTERICIN B LIPOSOME	Inpatient Prescription
Antifungal	CASPOFUNGIN ACETATE	Inpatient Prescription
Antifungal	FLUCONAZOLE IN DEXTROSE, ISO-OSMOTIC	Inpatient Prescription
Antifungal	FLUCONAZOLE IN SODIUM CHLORIDE, ISO-OSMOTIC	Inpatient Prescription
Antifungal	MICAFUNGIN SODIUM	Inpatient Prescription
Antifungal	VORICONAZOLE	Inpatient Prescription

Appendix J. Neonatal Enteroviral Sepsis (NES) Case Definition Algorithm Criteria

Case Definition Criterion[1]	Condition of Interest				
	Sepsis	Enteroviral Infection	Bleeding Dysfunction	Liver Dysfunction	Cardiac Dysfunction
1 (most strict)	*	*	*	*	*
2	*	*	*	*	
3	*	*	*		*
4	*	*		*	*
5	*	*	*		
6	*	*		*	
7	*	*			*
8 (least strict)	*	*			

*Asterisk represents the conditions of interest should be present to satisfy the case definition criterion

[1]Case definition levels were constructed based on combinations of codes for sepsis, enteroviral infection,and one or more of the organ dysfunctions to satisfy the NES case definition criteria. Case definitions in the table are sorted from most strict (case def=1) to least strict criteria required (case def=8).