Table IV. Type of Rash and Associated Diseases Caused by Infectious Agents

Disease	Description	Clinical Syndrome
CENTRAL DISTRIBUTED MACULOPAPULAR ERUPTIONS		
Measles	Discrete blanching erythematous "brick-red" lesions, confluent rash spreads from hair downward, sparing palms and soles; lasts >3 d; Koplik´s spots.	Cough, coryza, postration, conjunctivitis
Rubella	Prominent posterior cervical triangle and/or suboccipital adenopathy. Punctate soft palate macules, Forchheimer spots.	Usually no serious systemic symptoms
Exanthema subitum (roseola)	Diffuse eruption (sparing face). Resolves within 2 days.	Common in children 3-12 years, mild fever. In adults, arthralgias are common, history of exposure to an infected child
Erythema infectiosum	"Slapped cheek" appearance and net-like rash. Bright-red appearance, followed by diffuse lacy reticular rash that waxes and wanes over 3 wks.	Common in children 3-12 years, mild fever. In adults arthalgias and history of exposure to an affected child
Primary HIV infection	Nonspecific diffuse macules and papules, urticarial.	Pharyngitis, lymphadenopathy, arthralgias, myalgias, fatigue, headache and gastrointestinal symptoms
Infectious mononucleosis	Diffuse maculopapular eruption, urticaria in some cases, periorbital edemal, palatal petechiae.	Adolescents and young adults, fever, malaise, sweats, anorexia nausea, chills, sore throat, hepatosplenomegaly, cervical lymphadenopathy, atypical lymphocytosis, heterophile antibodies
Typhus	Maculopapular eruption, sparing face, palms, soles.	Exposure to body lice; or rat or cat fleas. Headache, myalgias
Rickettsial spotted fever	Eschar at site of bite: maculopapular eruption on proximal extremities, spreading to trunk and face.	Headache, myalgias, regional lymphadenopathy. Exposure to ticks (Mediterranean region, India, Africa, Australia, Siberia, Mongolia)
Ehrlichiosis	Central maculopapular eruption sparing extremities, palms, soles.	Tick born. In United States Southeast and southern Midwest. Headache, myalgias, nausea, emesis, diarrhea, malaise, altered mental status,

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		elevated transaminase levels, leukopenia and hyponatremia.
Typhoid fever	Blanchable erythematous macules and papules 2-4 mm, usually on trunk.	Contaminated food or water. Abdominal pain and diarrhea, headache, myalgias, hepatosplenomegaly
Erythema marginatum	Erythematous annular papules and plaques occurring in waves over trunk and proximal extremities, resolving in hour.	Patients with rheumatic fever. Pharyngitis before polyarthritis, carditis, chorea and subcutaneous nodules
Leptospirosis	Maculopapular eruption; conjunctivitis, sclera hemorrhage in some cases.	Exposure to water contaminated with animal urine. Myalgias, aseptic meningitis. Weil´s disease (fulminant form): icterohemorrhagic
Lyme disease	Papule expanding to erythematous annular lesion with central clearing. Sometimes concentric rings, or indurated, or vesicular center, or multiple secondary lesions are observed.	Bite or tick vector. Headache, myalgias, chills, photophobia (acute). CNS disease, myocardial disease, arthritis weeks to months later
Relapsing fever	Central rash at end of febrile episode; sometimes petechiae.	Exposure to ticks or body lice. Recurrent fever, headache, myalgias, hepatosplenomegaly
Rat bite	Eschar at site of bite. Red-brown central rash or blotchy violaceous.	Rat bite (primarily found in Asia). Regional lymphadenopathy, recurrent fevers if untreated
Dengue, Chikungunya, Zika	Morbiliform rash, fever, headache, muscle and joint pain.	Dengue is characterized by retro-orbital pain, muscle and joint pain. Chikungunya by long-standing arthralgias. Zika virus is mild and self-limited, but there is an association between maternal infection and adverse fetal outcome, such as congenital microcephaly. History of travel to endemic areas.
Ebola	Diffuse erythematous rash, which spreads from hair, buttocks, arms and legs, and then extended to trunk. Desquamation in palms, soles and limbs.	Abrupt onset of symptoms: Headache, chills, high fever, malaise, weakness. Progression after about 5 days: abdominal pain, nausea, aqueous diarrhea, haemorrhagic symptoms, altered mental status. Travel history to/from West Africa. Health-care workers in contact with Ebola patients.
PERIPHERAL ERUPTIONS		
Bacterial endocarditis	Subacute course: Osler´s nodes (tender pink nodules on finger or	Abnormal heart valve. Intravenous drug users. New

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	toe pads), petechiae on skin and mucosa, splinter hemorrhages; Acute course: Janeway lesions (painless erythematous or hemorrhagic macules on palms and soles).	heart murmur.
Erythema multiforme	Central erythema surrounded by area of clearing and another rim of erythema) up to 2 cm. Starts on backs of hands and feet and on extensor surfaces of arms and legs, symmetric, may involve palms, soles, oral mucous membranes of lips.	Drug intake. Herpes simplex, Mycoplasma pneumonia infection.
Hand-foot and mouth disease	Tender vesicles, erosions in mouth. 0.25 cm papules on hands and feet with rim of erythema evolving into tender vesicles.	Primarily children younger than 10 yr. Multiple family members. Transient fever.
Rocky Mountain Spotted fever	Rash beginning on wrists and ankles and spreading centripetally; appears on palms and soles late in disease. Lesions evolution from blanchable macules to petechiae.	Tick vector. In United States, more common in southeastern and southwest-central. Seasonal outbreaks. Short incubation period: Headache, fever, malaise, conjunctival suffusion and myalgias (adults). Abdominal pain (children). Mortality up to 40% if untreated.
Secondary syphilis	Coincident primary chancre in 10% of cases; cooper-colored, scaly popular eruption, diffuse but prominent on palms and soles; condyloma latum, mucous patches and alopecia in some cases.	Sexually transmitted. Fever, constitutional symptoms.
CONFLUENT DESQUAMATIVE ERYTHEMAS		
Scarlet fever	Diffuse blanchable erythema beginning on face and spreading to trunk and extremities; circumoral pallor, sandpaper texture to skin, accentuation of linear erythema in skin folds (Pastia lines); enanthem of white evolving into red.	Most common in children 2-10 yr. Usually follows group A Streptcoccal pharyngitis. Fever, pharyngitis, headache, vomiting and abdominal pain.
Streptococcal toxic shock syndrome	Rash often scarlatiform.	Occurs in setting of severe group A Streptococcal infections. Multiorgan failure, hypotension, 30% mortality rate.
Staphylococcal toxic shock syndrome	Painful, diffuse erythema involving palms and flexure areas, profuse erythema of mucosal surfaces. Progress to large, flaccid bullae. Desquamation 7-10 days of	Colonization with toxin-producing *S.aureus*. Fever >39°C, hypotension, multiorgan dysfunction.

	illness.	
Staphylococcal scalded-skin syndrome	Diffuse tender erythema, often with bullae and desquamation: Nikolsky´s sign.	Colonization with toxin-producing *S.aureus*. Irritability, nasal or conjunctival secretions.
Kawasaki disease	Rash on hands and feet starting 3-5 days after onset of fever in children younger than 8 yrs (usually younger than 4 yrs) blanching macular exanthema on trunk, especially groin and diaper area,.	Bilateral conjuntival injection, hyperemic oral mucosa and red, dry, cracked, bleeding lip injected pharynx, cervical adenopathy, coronary artery vasculitis.
Necrotizing fasciitis	Black eschar that sloughs off, crepitus, dusky blue discoloration, erythema.	Life-threating condition, rapidly spreading infection that involves subcutaneous tissue and superficial fascia and typically spares muscle tissue. Type I usually polymicrobial and type II usually monomicrobial. Fever, warmth, swelling, edema, pain out of proportion, systemic toxicity.
VESICULOBULLOUS ERUPTIONS		
Varicella (chicken- pox)	Macules, papules (sometimes umbilicated), pustules then forming crusting.	Usually affects children. More common in winter and spring. Malaise, mild disease in children, more severe disease in adults and in immunocompromised.
Dissemination herpes-virus infection	Zoster cutaneous dissemination: >25 lesions extending outside involved dermatome; HSV: mucocutaneous involvement.	Immunosupressed individuals. Visceral organ involvement (especially of liver) may occur.
Vibrio vulnificus infection	Erythematous lesions evolving into hemorrhagic bullae and then into necrotic lesions.	Patients with diabetes, renal failure, cirrhosis; ingestion of contaminated saltwater seafood. Hypotension; 50% mortality.
Ecthyma gangrenosum	Indurated plaque evolving into hemorrhagic bulla or pustule that sloughs, resulting in eschar formation; erythematous halo; most common in axillary, groin, perianal regions.	Usually affects neutropenic patients; occurs in up to 28% of individual with Pseudomonas bacteremia. Sepsis.
Rickettsial pox	Eschar found at site of mite bite; generalized rash involving face, trunk, extremities; may involve palms and soles; <100 papules and plaques (2-10 mm), top of lesions develop vesicles that may evolve into pustules.	Urban settings, transmitted by mouse mites. Headache, myalgias, regional lymphadenopathy, mild disease.
NODULAR ERUPTIONS		
Disseminated infection	Subcutaneous nodules, fluctuance, draining common with	Immunocompromised hosts. Features vary with the organism.

	mycobacteria; necrotic nodules common with Aspergillus, Mucor.	
Erythema nodosum	Large violaceous, nonulcerative, subcutaneous nodules; exquisitely tender; usually on extremities.	More common in females 15-30 years of age. Arthralgias (50%): features vary with associated condition.
Bacillary angiomatosis	Erythematous, smooth vascular nodules, friable, exophytic lesions, erythematous plaques, subcutaneous nodules.	Usually in HIV. Peliosis of liver and spleen. Lesions may involve multiple organs.
PURPURIC ERUPTIONS		
Acute meningococcemia	Numerous petechiae, sometimes enlarging becoming vesicular, most commonly in trunk and extremities. May include purpura fulminans.	Most common in children, asplenia, or complement deficiency. Fever, myalgia, somnolence, headache and nausea. Hypotension, meningitis.
Purpura fulminans	Large ecchymoses with sharply irregular shapes evolving into hemorrhagic bullae and then into black necrotic lesions.	Individuals with sepsis, malignancy, or massive trauma. Asplenic patients at high risk for sepsis. Hypotension.
Chronic meningococcemia	Recurrent eruptions: maculopapular, nodules, petechial, purpuric areas.	Complement deficiencies. Fever, arthritis, myalgias, headache.
Disseminated gonococcal infection	Papules evolving over 1-2 days into hemorrhagic pustules. Lesions (<40) distributed peripherally near joints.	Sexually active individuals, some with complement deficiency.
Viral hemorrhagic fever	Disseminated petechial rash.	Residence or travel to endemic areas. Fever, shock, hemorrhage from mucosa or gastrointestinal tract.
Enteroviral petechial rash	Petechial lesions.	Outbreaks. Pharyngitis, headache, aseptic meningitis.
ERUPTIONS WITH ULCERS AND/OR ESCHARS		
Tularemia	Ulceroglandular form: erythematous tender papule evolves into necrotic, tender ulcer. 35% eruptions may occur.	Exposure to ticks, biting flies. Fever, headache, lymphadenopathy.
Anthrax	Pruritic enlarging papule evolving into 1-3 cm painless ulcer surrounded by vesicles, later developing a central eschar with edema.	Organism has two distinct niches in which can survive: soil and mammals, including humans. Outbreaks seen occasionally. Seen in heroin users.