

Pesticide Registration (PR Notice) Notice 2002-1

NOTICE TO MANUFACTURERS, FORMULATORS, PRODUCERS, REGISTRANTS AND APPLICATORS OF PESTICIDE PRODUCTS

ATTENTION: Persons Responsible for Public Health Programs and Those Responsible for
Registration of Pesticide Products

SUBJECT: List of Pests of Significant Public Health Importance

This notice identifies pests of significant public health importance. Section 28(d) of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) requires the United States Environmental Protection Agency (EPA), in coordination with the United States Department of Health and Human Services (HHS) and United States Department of Agriculture (USDA), to identify pests of significant public health importance and, in coordination with the Public Health Service, to develop and implement programs to improve and facilitate the safe and necessary use of chemical, biological and other methods to combat and control such pests of public health importance. Issuance of this list fulfills the requirement of FIFRA sec. 28(d) to identify pests of significant public health importance as a part of this process.

The publication of this list does not affect the regulatory status of any registration or application for registration of any pesticide product. This list does not, by itself, determine whether a pesticide product might be considered a “public health pesticide” as that term is used in FIFRA. That term, is defined in FIFRA section 2(nn); determining whether a pesticide is a public health pesticide is beyond the scope of this PR Notice.

Compilation of this list was a cooperative effort by the HHS, USDA and the EPA. The Office of Pesticide Programs, EPA, coordinated the review by experts in public health and/or pesticide use patterns to compile this list. No person is required to take any action in response to this notice.

The Agency has determined that the list of pests of significant public health importance required under FIFRA section 28(d) can be established independently of the definition of “public health pesticide” in Section 2(nn). EPA is interpreting the term “significant public health importance” broadly, to include pests that pose a widely recognized risk to significant numbers of people. This amended list addresses the majority of comments received and also provides a mechanism for all interested parties to engage further on this topic.

I. BACKGROUND

FIFRA section 28(d) charges EPA with identifying “pests of significant public health importance.” FIFRA section 2(t) defines the term “pest” as meaning:

(1) any insect, rodent, nematode, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organism (except viruses, bacteria, or other micro-organism on or in living man or other living animals) which the Administrator declares to be a pest under section 25(c)(1).

Pursuant to the authorization in the second part of this definition, EPA has broadly declared the term pest to cover each of the organisms mentioned except for the organisms specifically excluded by the definition (See 40 CFR 152.5).

II. THE LIST

EPA has determined that the pests identified in Appendix A are pests of significant public health importance as that term is used in FIFRA section 28(d). This list is derived in large part from review of the pesticide/pest combinations for which efficacy (product performance) data are generally required to be submitted and reviewed prior to registration. In no way should this be interpreted to mean that EPA has or would base any regulatory action solely on this list. EPA is publishing this list separate from any statutory or regulatory conclusions which may be associated with public health pesticides.

A brief description of the identified pests or category of pests and an explanation for designating each as a public health pest is provided below:

Cockroaches. The listed cockroaches are controlled to halt the spread of asthma, allergy, and food contamination.

Body, head, and crab lice. These lice are surveyed for and controlled to prevent the spread of skin irritation and rashes, and to prevent the occurrence of louse-borne diseases such as epidemic typhus, trench fever, and epidemic relapsing fever in the United States.

Mosquitoes. Mosquitoes are controlled to prevent the spread of mosquitoes bearing such diseases as malaria; St. Louis, Eastern, Western, West Nile and LaCrosse encephalitis; yellow fever and dengue fever.

Various rats and mice. The listed rats and mice include those which are controlled to prevent the spread of rodent-borne diseases and contamination of food for human consumption.

Various microorganisms, including bacteria, viruses, and protozoans. The listed

microorganisms are the subject of control programs by public health agencies and hospitals for the purpose of preventing the spread of numerous diseases.

Reptiles and birds. The listed organisms are controlled to prevent the spread of disease and the prevention of direct injury.

Various mammals. The listed organisms have the potential for direct human injury and can act as disease reservoirs (i.e., rabies, etc.).

EPA, HHS and USDA do not envision that this list of pests of significant public health importance will remain static. It is possible in the future, as there are new discoveries concerning the roles of species in spreading disease, that this list may need to be changed. Should any additional species be found to present public health problems, EPA may determine that it should consider them to be pests of significant public health importance under FIFRA Section 28 (d). As deemed necessary, the Agency will update the list of pests of significant public health importance. Interested parties are invited to petition the Agency regarding the amendment of this list. This petition should include the common use name and scientific name of the pest, and a rationale regarding the public health threat posed by this pest. These petitions can be sent to the contact under Part VI. For Additional Information.

III. USE OF THE LIST OF PESTS OF SIGNIFICANT PUBLIC HEALTH IMPORTANCE LIST BY THE AGENCY

The Agency will use the list of pests of significant public health importance to:

1. Fulfill the requirements set forth in FIFRA Section 28(d)
2. Together with the Public Health Service, develop and implement programs to improve and facilitate the safe and necessary use of chemical, biological and other methods to control pests of public health importance.

V. WHAT REGISTRANTS SHOULD DO

Registrants do not need to do anything in response to this notice.

VI. FOR ADDITIONAL INFORMATION

If you have questions regarding this PR Notice, contact:

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Signed: _____
Marcia E. Mulkey, Director
Office of Pesticide Programs, (7501C)

Appendix A

INVERTEBRATE PESTS

COMMON/ SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE
ARTHROPODS	ARTHROPODA	
TICKS	ACARI	
soft ticks	<i>Ornithodoros hermsi</i>	tick-borne relapsing fever
soft ticks	<i>Ornithodoros parkeri</i>	tick-borne relapsing fever
soft ticks	<i>Ornithodoros turicata</i>	tick-borne relapsing fever
American dog tick Rocky Mountain wood tick	<i>Dermacentor variabilis</i> <i>Dermacentor andersoni</i>	Rocky Mountain spotted fever, tick paralysis and Colorado tick fever
blacklegged tick (deer tick)	<i>Ixodes scapularis</i>	lyme disease and ehrlichiosis
western blacklegged tick	<i>Ixodes pacificus</i>	lyme disease and ehrlichiosis
lone star tick	<i>Amblyomma americanum</i>	ehrlichiosis
Gulf Coast tick	<i>Amblyomma maculatum</i>	tick paralysis
MITES	ACARI	
chigger mites (common chiggers)	<i>Trombicula</i> spp.	itching, skin irritation
American house dust mite	<i>Dermatophagoides farinae</i>	allergy, asthma
European house dust mite	<i>Dermatophagoides pteronyssinus</i>	allergy, asthma
itch mite (scabies mite)	<i>Sarcoptes scabiei</i>	scabies
SPIDERS	ARANEAE	
black widow spider four related species	<i>Latrodectus mactans.</i> <i>Latrodectus</i> spp.	venomous bite

COMMON NAME	TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE
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brown recluse spider	Loxosceles reclusa	venomous bite
hobo spider	Tegenaria agrestis	venomous bite
SCORPIONS	SCORPIONES	
sculptured scorpion related species	Centruroides sculpturatus Centruroides spp.	venomous sting
INSECTS	INSECTA	
Cockroaches	Blattodea	
American cockroach Australian cockroach brownbanded cockroach German cockroach Oriental cockroach	Periplaneta americana Periplaneta australasiae Supella longipalpa Blattella germanica Blatta orientalis	allergies, transmission of Salmonella, fecal contamination, hepatitis
Sucking lice	Anoplura	
body louse (cootie) head louse crab louse (crabs)	Pediculus humanus humanus Pediculus humanus capitis Phthirus pubis	skin irritation, rashes, epidemic typhus, trench fever and epidemic relapsing fever
True bugs	Heteroptera	
bed bug masked hunter kissing bugs, conenosed bugs	Cimex lectularis Reduvius personatus Triatoma spp.	bites, allergic reactions allergic reactions, Chagas disease, trypanosome transmission, allergic reactions
Flies, mosquitoes, midges, gnats	Diptera	
"no-see-ums", punkies biting midges	Culicoides spp. Leptoconops spp.	annoying bites, allergic reactions
horse flies, deer flies and greenheads	Tabanidae (many species)	painful bites, allergic reactions
COMMON NAME	TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE

black flies, black gnats	Simuliidae (many species)	painful bites, allergic reactions
house fly stable fly little house fly	Musca domestica Stomoxys calcitrans Fannia canicularis	may transmit dysentery, salmonella, shigella, painful bites, allergic reaction rarely myiasis
screwworm secondary screwworm	Cochliomyia hominivorax Cochliomyia macellaria	myiasis myiasis
sand flies	Lutzomyia spp.	American dermal leishmaniasis
mosquitoes	Culicidae to include Culex spp., Culiseta spp., Aedes spp., Ochlerotatus spp., Anopheles spp., Psorophora spp., and Coquillettidia spp.	malaria; St. Louis, West Nile, Eastern, Western, LaCrosse and Cache Valley encephalitis; dengue, yellow fever, dog heartworm
Fleas	Siphonoptera	
cat flea dog flea human flea sticktight flea oriental rat flea chigoe flea	Ctenocephalides felis Ctenocephalides canis Pulex irritans Echidnophaga gallinacea Xenopsylla cheopis Tunga penetrans Oropsylla spp. Thrassis spp	annoying bites, allergic reactions, rash bubonic plague & murine plague plague
Ants, bees & wasps	Hymenoptera	
pharaoh ant	Monomorium pharaonis	feed on wounds

COMMON NAME	TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE
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southern fire ant California fire ant red imported fire ant black imported fire ant	Solenopsis xyloni Solenopsis geminata Solenopsis wagneri (invicta) Solenopsis richteri	painful stings accompanied by severe reactions
California harvester ant harvester ant	Pogonomyrmex californicus Pogonomyrmex rugosus	painful stings that may cause life threatening reactions
yellowjackets baldfaced hornet giant hornet paper wasps	Vespula spp. Vespula maculata Vespa crabro Polistes spp.	painful stings that may cause life threatening reactions
africanized honey bee	Apis mellifera scutellata	painful stings that may cause life threatening reactions

VERTEBRATE PESTS AND PESTICIDE USE
PATTERNS

COMMON/ SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE
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REPTILES

Rattlesnakes (Crotalus spp.)	Any site where an attack on humans may occur.	direct injury
Copperheads, cottonmouths (Agkistrodon spp.)	Any site where an attack on humans may occur.	direct injury
Coral snakes (Micrurus spp.)	Any site where an attack on humans may occur.	direct injury
Brown Tree snake (Boiga irregularis)	Any site where an attack on humans may occur.	direct injury

BIRDS

Geese (Subfamily Anserinae)	Park, turf and golf course areas where droppings may accumulate. Any site where an attack on humans may occur. Airports and/or flight paths.	disease, direct injury, human safety only repellents are registered for their control
Mute swan (Cygnus olor)	Park, turf, and golf course areas where droppings may accumulate. Any site where an attack on humans may occur.	disease, direct injury only repellents are registered for their control

COMMON/SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE
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Gulls (Subfamily Larinae)	Park, turf, golf course and public landfill/dump areas where droppings may accumulate. Airports and/or flight paths.	disease, human safety
Coot (Fulica americana)	Park, turf, and golf course areas where droppings may accumulate.	disease
Rock dove and domestic pigeon (Columbia livia)	Airports and/or flight paths. Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety
Cliff swallow (Hirundo fulva)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety

COMMON/SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE
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House (English) Sparrow (Passer domesticus)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety
Crows (Corvus brachyrhynchos & Corvus ossifragus)	Park, turf, and golf course areas where droppings may accumulate.	disease
Starling (Sturnus vulgaris)	Airports and/or flight paths. Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety
House finch (Carpodacus purpureus)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety
Blackbirds (Family Icteridae)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Airports and/or flight paths.	disease, human safety
COMMON/SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE

Turkey vulture (Cathartes aura)	Airport and/or flight paths.	direct injury, human safety
Black vultures (Coragyps atratus)	Airport and/or flight paths.	direct injury, human safety
MAMMALS		
Big brown bat (Eptesicus fuscus)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease
Little brown bat (Myotis lucifungus)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease
Brazilian (Mexican) free-tailed bat (Tadarida brasiliensis)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease
COMMON/SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE

Big eared bat (Corynorhinus spp.)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease
Commensal rats (Rattus spp.)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans. Any site where this pest is found that presents a hazard or threat of direct injury to humans	disease, direct injury, human safety
House mouse (Mus musculus)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety
Cotton rats (Sigmodon spp.)	Any site where this pest is found that presents a hazard or threat of direct injury to humans	disease

COMMON/SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE
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Deer mice (excluding endangered varieties) (Peromyscus spp.)	Any site where this pest is found that presents a hazard or threat of direct injury to humans.	disease
Ground squirrels (Spermophilus spp.)	Any site where this pest is found that presents a hazard or threat of direct injury to humans	disease
Prairie dogs (Cynomys spp. excluding endangered Cynomys parvidens)	Any site where this pest is found that presents a hazard or threat of direct injury to humans	disease
Tree squirrels (Sciurus spp., Tamiasciurus spp.)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety
Flying squirrels (Glaucomys spp. excluding endangered species)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety

COMMON/SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE
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Chipmunks (Tamias striatus, Eutamias spp.)	Buildings (indoor and outdoor areas) where droppings and/or ectoparasites may accumulate. Areas where damage to a building or any of its components presents a hazard to humans.	disease, human safety
Wood rats (Nematoma spp.)	Any site where this pest is found that presents a hazard or threat of direct injury to humans	disease
Bears (Ursus spp.)	Any site where an attack on humans may occur.	direct injury only repellents are registered for their control
Raccoon (Procyon lotor)	Any site where an attack on humans may occur. Areas where damage to a building or any of its components presents a hazard to humans. Any site where this pest is found that presents a hazard or threat of direct injury to humans	direct injury, rabies reservoir
Gray wolf (Canis lupus)	Any site where an attack on humans may occur.	direct injury, disease Control methods employed by State and Federal Biologists.
Foxes (Vulpes vulpes, Urocyon cinereoargenteus, Alopex lagopus)	Any site where an attack on humans may occur.	direct injury, disease rabies reservoir Control methods employed by State and Federal biologists.
COMMON/SPECIES NAME	SITE CLASS	PUBLIC HEALTH IMPORTANCE

Coyote (Canis latrans)	Any site where an attack on humans may occur.	direct injury, disease
Skunks (Mephitis mephitis, Spilogale putorius)	Any site where an attack on humans may occur. Any site where this pest is found that presents a hazard or threat of direct injury to humans	direct injury, rabies reservoir

MICROORGANISMS OF PUBLIC HEALTH SIGNIFICANCE

ORGANISM TYPE TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
BACTERIA	
Spirochetes	
Leptospira spp. (2)	leptospirosis
Treponema pallidum (3)	syphilis
Treponema pertenue (2)	Yaws: skin lesions
Treponema carateum (2)	Pinta: skin lesions
Gram-Negative Bacteria - aerobic rods and cocci	
Campylobacter jejuni (2)	food enteritis
Campylobacter fetus sub. fetus (1)	infections, abscesses
Pseudomonas aeruginosa (1)	infects wounds/causes septicemia, abscesses and meningitis
Pseudomonas fluorescens, P. putida, P. stutzeri (1)	respiratory and urinary tract infections, infects wounds, bacteremia
Stenotrophomonas maltophilia (1)	urinary tract infections
Burkholderia cepacia (1)	opportunistic pathogen - endocarditis, septicemia, wound infections
Burkholderia pseudomallei (1)	urinary tract infections
Burkholderia mallei (1)	glanders - a disease of horses occasionally transmitted to humans
Legionella pneumophila (1)	Legionnaire's Disease
Legionella bozeman, L. dumoffii, L. longbeachae (1)	pneumonia
TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE

Neisseria meningitidis (1)	meningococcal meningitis
Neisseria gonorrhoeae (3)	gonorrhea
Neisseria elongata (1)	urinary tract and pharyngeal infections
Bordetella pertussis (1)	whooping cough
Brucella spp.	brucellosis (undulant fever)
Moraxella lacunata (1)	conjunctivitis
Acinetobacter spp. (1)	nosocomial infections
Aeromonas hydrophila (1, 2)	gastroenteritis, wounds, septicemia
Haemophilus influenzae (1)	bronchitis, sinusitis, conjunctivitis, otitis
Haemophilus ducreyi (3)	venereal disease - soft chancre or chancroid
Chromobacterium violaceum	pyogenic infections, septicemia
Calymmatobacterium granulomatis (3)	ulcerating lesions in genital area
Gram-Negative Bacteria - facultatively anaerobic rods	
Vibrio cholerae (2)	cholera
Vibrio parahaemolyticus (2)	gastroenteritis
Vibrio vulnificus (1)	wound infections, septicemia
Vibrio alginolyticus (1)	wounds, ear infections
Plesiomonas shigelloides (2)	gastroenteritis
Pasteurella multocida (1)	opportunistic pathogen - meningitis, arthritis, otitis, septicemia, sinusitis, encephalitis
Acintobacillus ureae (1)	pneumonia, bronchitis, meningitis, septicemia, sinusitis
TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE

Cardiobacterium hominus	endocarditis
Gardnerella vaginalis	nonspecific vaginitis
Eikenella spp. (1)	opportunistic pathogen
Enteric Bacteria	
Escherichia coli (2)	urinary tract infections, septicemia, diarrhea, hemorrhagic colitis
Shigella dysenteriae (2)	dysentery, diarrhea
Shigella flexneri (2)	dysentery, diarrhea
Shigella sonnei (2)	dysentery, diarrhea
Salmonella choleraesuis (2)	gastroenteritis, septicemia, bacteremia and arthritis.
Salmonella enteritidis (2) and many other serovars	salmonellosis(food poisoning), septicemia, diarrhea
Salmonella typhi, S. paratyphi (2)	typhoid fever
Salmonella typhimurium (2)	enterocolitis, gallbladder infection
Citrobacter freundii, C. amalonaticus (1)	opportunistic pathogen
Citrobacter diversus (1)	opportunistic pathogen, neonatal meningitis
Klebsiella pneumoniae (2)	opportunistic pathogen, pneumoniae, infant diarrhea and urinary tract infections
Enterobacter aerogenes (2) and related species (2)	wound infection, other nosocomial infections, urinary tract infections, gastroenteritis
Enterobacter cloacae (1)	opportunistic pathogen
TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE

Hafnia alvei (1)	opportunistic pathogen
Proteus mirabilis (1) Proteus vulgaris (1)	urinary tract infections, infant diarrhea, respiratory infections
Serratia marcescens (2)	opportunistic pathogen, cystitis, bloodstream and central nervous system infections
Providencia spp. (1)	nosocomial infections, urinary tract infections, burn wound infections
Morganella spp. (1)	opportunistic pathogen, bacteremia, respiratory/urinary tract infections, wound infections
Yersinia enterocolitica (2)	gastroenteritis
Yersinia pseudotuberculosis (1)	wound infections, septicemia
Anaerobic Gram-Negative Straight, Curved and Helical Rods	
Bacteroides spp. (1)	periodontal disease
Bacteroides fragilis (1)	anaerobic bacteremia
Fusobacterium necrophorum (1)	abscesses
Rickettsias and Chlamydias - obligate, intracellular parasites	
Rickettsias -rod shaped bacteria or coccobacilli, gram-negative, non-motile, most transmitted by arthropods	
Rickettsia akari	rickettsial pox
Coxiella burnetii (1)	Q fever
Chlamydia - coccoid bacteria, gram-negative, non-motile	

TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
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Chlamydia trachomatis (3)	trachoma (blindness) nongonococcal urethritis lymphogranuloma venereum
Chlamydia psittaci (1)	psittacosis (ornithosis)
Chlamydia pneumoniae (1)	pneumonia
Mycoplasmas	
Mycoplasma pneumoniae (1)	pneumonia
Mycoplasma hominus (1)	urogenital tract infections
Mycoplasma genitalium (1)	urogenital tract infections
Ureaplasma urealyticum (1)	urogenital tract infections
Gram Positive Cocci	
Staphylococcus aureus	skin infections such as cellulitis, boils, carbuncles, impetigo, and post operative wound infections. Can cause food poisoning and toxic shock syndrome. Bacteremia, Endocarditis, meningitis, pneumonia and osteomyelitis
Coagulase negative Staphylococcus spp. (1)	bacteremia, infective endocarditis, peritonitis associated with dialysis and predominantly genitourinary tract infections.
Group A Streptococci - beta hemolytic e.g. Streptococcus pyogenes (1)	pharyngitis, tonsillitis, sinusitis, arthritis. Infection can lead to rheumatic fever, scarlet fever or impetigo
Group B Streptococci e.g, Streptococcus agalactiae (1)	neonatal disease: pneumonia, septicemia, meningitis; adult disease: pneumonia, meningitis, endocarditis
TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
Group C Streptococci e.g., Streptococcus equisimilis (1)	pneumonia, pharyngitis, endocarditis, meningitis

Enterococcus faecalis (1) (NOTE: name changed from Streptococcus in 1984)	wound infections, bacteremia, Endocarditis, urinary tract infections may lead to meningitis.
Streptococcus pneumoniae (1)	pneumonia, otitis media, bacteremia, meningitis
Endospore-forming Gram-positive rods and cocci	
Bacillus anthracis (4)	anthrax
Bacillus cereus (2)	food intoxication
Clostridium tetani (4)	tetanus
Clostridium botulinum (2)	botulism
Clostridium perfringens (4)	gas gangrene
Clostridium difficile (4)	antibiotic-associated pseudomembranous colitis
Regular, non-sporing gram-positive rods	
Listeria monocytogenes (2)	food poisoning, abscess, abortion and meningitis
Erysipelothrix rhusiopathiae (1)	erysipeloid - affects skin on hand & lower arms; systemic - arthritis, endocarditis; occupational disease of veterinarians, butchers fisherman
Irregular, non-sporing, Gram-positive rods	
Corynebacterium diphtheriae (1)	diphtheria

TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
Actinomyces spp. (1)	Actinomycoses -granulomatous inflammatory processes giving rise to abscess formation; ocular infections, caries, periodontal disease, intrauterine infection

Propionibacterium acnes (4)	acne
Mycobacteria	
Mycobacterium tuberculosis (1)	tuberculosis
Mycobacterium avium - intracellulare complex	pulmonary disease similar to tuberculosis
Mycobacterium kansasii	pulmonary disease similar to tuberculosis
Mycobacterium fortuitum-chelonaei complex (1)	pulmonary, cutaneous abscesses, post-operative wound infections
Mycobacterium leprae (1)	leprosy
Actinomycetes - irregular, non-sporing, Gram-positive	
Nocardia spp. (1)	opportunistic pathogens-localized cutaneous/subcutaneous infections; pulmonary, neural, and/or systemic nocardiosis; actinomycotic mycetomas - tumor-like growths within tissues
Rhodococcus spp. (1)	opportunistic pathogen in immune compromised individuals
Streptomyces somaliensis (1)	actinomycetoma
Actinomadura madurae (1)	actinomycetoma
Actinomadura pelletiere (1)	actinomycetoma

TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
FUNGI - Genus, species	
Rhizopus spp. (1)	opportunistic pathogen murcomycosis
Rhizomucor spp. (1)	opportunistic pathogen murcomycosis

Absidia spp. (1)	opportunistic pathogen murcomycosis
Mucor spp. (1)	opportunistic pathogen murcomycosis
Cunninghamella spp. (1)	opportunistic pathogen murcomycosis
Mortierella spp. (1)	opportunistic pathogen mucormycosis
Saksenaea spp. (1)	opportunistic pathogen murcomycosis
Apophysomyces spp. (1)	opportunistic pathogen murcomycosis
Candida albicans (1)	candidiasis, thrush
Candida spp. (albicans, tropicalis, torulopsis, glabrata, parapsilosis) (1)	iatrogenic infections, genitourinary tract infections
Fusarium spp. (solani, moniforme, proliferatum) (1)	disseminated skin lesions, - patients with leukemia
Pseudalleschericia boydii (1)	pulmonary; local lesions in paranasal sinuses; disseminated - kidney, thyroid, brain, heart
Cryptococcus neoformans (1)	meningitis

TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
Trichosporon spp. (1)	trichosporonosis -lesions in skin, kidney, liver, eyes, lungs.
Epidermophyton floccosum (1) (4)	ringworm - tinea cruris, tenia pedis
Malassezia furfur (1)	tinea versicolor, lesions of skin - chest, back and shoulders

Exophiala wernecki (1)	tinea nigra palmaris - brown/black macular areas on hands/fingers
Trichophyton mentagrophytes (1)(5)	athlete's foot, tinea pedis
Trichophyton spp. (1)(4)	ringworm - tinea corporis, tinea pedis, tinea barbae, tinea cruris, tinea capitis, tinea favosa
Microsporum spp. (1)	tinea capitis
Pneumocystis carinii (previously classified as protozoan, now classified as fungus) (1)	pneumonia - opportunistic pathogen
Histoplasma capsulatum (1)	histoplasmosis - respiratory tract infection
Coccidioides immitis (1)	coccidioidomycosis - respiratory tract infection
Paracoccidioides brasiliensis (1)	paracoccidioidomycosis - lesions on skin, in mouth, in lungs, lymph nodes
Blastomyces dermatitidis (1)	blastomycosis - granulomatous lesions; pulmonary infection
Sporothrix schenckii (1)(4)	ringworm - tinea nigra
Aspergillus spp. (fumigatus, flavus, niger, terreus)	aspergillosis - pulmonary infection
TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
Aspergillus fumigatus (1)	pneumonia, skin infections, ear infections
Aspergillus flavus (2)	food-borne intoxication (aflatoxin)
Aspergillus parasiticus (2)	food-borne intoxication (aflatoxin)
PROTOZOANS - Genus, species	

Amoebas	
Entamoeba histolytica (2)	amoebic dysentery
Naegleria fowleri (2)	microencephalitis
Acanthamoeba spp. (2)	Keratitis, may lead to blindness; chronic granulomatous amoebic encephalitis
Flagellates	
Giardia lamblia (2)	dysentery
Trichomonas vaginalis (3)	urethritis, vaginitis
Ciliates	
Balantidium coli (2)	dysentery
Sporozoa	
Cryptosporidium spp. (2)	diarrhea
Cyclospora sp.	food poisoning
Toxoplasma gondii (4)	toxoplasmosis
VIRUSES	
Adenoviruses (subgenera A-E, serotypes 1-47) (1)	respiratory infections, ocular infections, genitourinary infections, gastroenteritis
Herpesviruses	
TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
Herpes Simplex Virus Type 1 (1)	fever blisters and canker sores
Herpes Simplex Virus Type 2 (3)	genital lesions
Epstein Barr Virus (1)	infectious mononucleosis - headache, malaise, fatigue, fever, pharyngitis, lymphadenopathy
Varicella - Herpes Zoster virus (1)	shingles, chickenpox

Herpes B virus (4)	infection a risk of primate handlers such as in zoos and laboratories-fatalities from ascending paralysis and encephalitis from monkey bites
Cytomegalovirus (1)	congenital abnormalities in newborns, mononucleosis; various infections in the immunocompromised
Poxviruses	
Variola (smallpox) virus	Variola major and minor (smallpox)
vaccinia	cowpox
Picornaviruses	
Poliovirus (2)	polio
Coxsackieviruses A1-A22, A24, B1-B6	meningitis (A7, A9, B1-B6); myocarditis (B); hand-foot-mouth disease (A9, A16); colds (A21, A24, B)
Echoviruses 1-34 (not 10 or 28)	chronic meningoencephalitis; myocarditis; maculopapular exanthema (9, 16); colds (11, 20); neonatal carditis, encephalitis, hepatitis (11)

TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
Enteroviruses 68-71 (1)	meningitis; paralysis (70, 71); hand-foot-mouth disease (71); acute hemorrhagic conjunctivitis (70); maculopapular exanthema
Hepatitis A (2)	hepatitis
Rhinoviruses 1-100 (1)	colds
Togaviruses	

Rubella virus (1)	rubella
Flaviviruses	
Hepatitis C virus (2)	hepatitis C
Bunyaviruses	
Hantaviruses: Hantaan, Puumala, Seoul, Muerto Canyon viruses (4)	Acute respiratory infection, hemorrhagic fever, nephropathy
Orthomyxoviruses	
Influenza A (1)	Flu
Influenza B (1)	Flu
Influenza C (1)	Flu
Paramyxoviruses	
Measles virus (1)	measles
Mumps virus (1)	mumps
Respiratory Syncytial virus (1)	pneumonia, bronchitis

TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
Parainfluenza viruses (1)	respiratory tract uinfections-bronchiolitis, pharyngitis croup, pneumonia; fever
Coronaviruses	
Coronavirus (1)	upper respiratory tract infections, colds
Toroviruses (1)	upper respiratory tract infections, colds
Retroviruses	
HIV strains (3)	AIDS

Human T-Cell Lymphoma viruses (3)	leukemia/lymphoma; tropical spastic paraparesis (TSP)
Rhabdoviruses	
Vesticular stomatitis virus (1)	influenza-type illness; fever chills, muscle pain
Reoviruses	
Rotaviruses (2)	gastroenteritis: vomiting generally preceding diarrhea
Hepadnaviruses	
Hepatitis B (3)	hepatitis
Hepatitis D (3)	hepatitis
Caliciviruses	
Norwalk virus (2)	gastroenteritis
Hepatitis E (2)	acute hepatitis
Astroviruses (2)	diarrhea
Filoviruses	

TAXONOMIC NAME	PUBLIC HEALTH IMPORTANCE - CLINICAL SIGNIFICANCE
Ebola-S (Sudan) (3) Ebola-Z (Zaire) (3)	hemorrhagic fever
Marburg (3)	hemorrhagic fever
Papoviruses	
Papillomaviruses (3)	genital warts, common warts, plantar warts, flat warts, butcher's warts, oral and respiratory papillomas.
Polyomaviruses: BK virus (1)	upper respiratory infections

Polyomavirus JC (1)	progressive multifocal leukoencephalopathy (PAL)
Parvoviruses	
Erythrovirus: Parvovirus B19 (4)	erythema infectiosum (fifth disease); arthritis; aplastic chronic anemia; hydrops fetalis
Arenaviruses	
Lymphocytic choriomeningitis virus (1)	meningitis
PRIONS	Bovine Spongiform Encephalopathy, Kuru, Creutzfeldt-Jakob Disease, scrapie

FOOTNOTES:

- (1) Transmitted by respiratory or nosocomial contact.
- (2) Transmitted by contaminated food or water.
- (3) Transmitted by blood or other body fluids.
- (4) Transmitted by contact with other environmental factors.

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