

Supplementary Table S1: Data on natural Mpox infections in humans, reported in selected articles and case reports, published up to 2 September 2022

Country	Duration of study	Clinical disease symptoms	Clinical samples used for Mpox or OPXV detection	Techniques used for Mpox or OPXV detection	Summary of results (Number of Mpox or OPXV positive samples detected)	Reported history of contact with animals/ Notes	Reported transmission status	Citations
DRC	1970	Fever, rash	Crust	Virus isolation	Virus isolation (1/1)	None reported	None reported	[57]
	1980-1984	Skin lesions, rash	Vesicular and pustular fluid or scab, blood	Virus isolation, EM, HI, ELISA IgG, RIA	Serology (44/559; using sera). Virus isolation and EM (48/559; using lesions)	None reported	Human-to-human	[62]
	1982	Fever, pustular rash, inguinal lymphadenopathy	Crusted scab	Virus isolation, EM	Virus isolation (1/1); EM (1/1)	Bitten by a chimpanzee	Chimpanzee-to-human	[141]
	1983	Pustular rash, lymphadenopathy, fever	Skin lesions, blood	Virus isolation, RIA	RIA (2/5; using blood). Virus isolation (3/5; using skin lesions)	History of feeding upon red colobus monkeys in a family, where three people were Mpox positive	Human-to-human, hospital acquired	[173]
	1996	Skin lesions	Crusted scabs, vesicular fluid, blood	PCR, virus isolation, western blot, ELISA IgM	Mpox-PCR (3/4; using crusted scabs); Mpox-IgM ELISA (5/6); OPXV-western blot (10/11); Virus isolation (2/3; using vesicular fluid)	The villagers had a history of hunting squirrels	Human-to-human	[143]

	1996-1997	Rash, skin lesions, fever, lymphadenopathy	Skin lesions, blood	Mpox-PCR, virus isolation, HI, neutralization assay, western blot, Sanger sequencing for HA gene	Active cases: Mpox-PCR and virus isolation (7/7; using skin lesions); Sanger sequencing (7/7; Mpox HA gene); VZV-PCR (2/7; using skin lesions); OPXV antibodies in blood: Western blot (6/7); HI (3/7); neutralization assay (2/7); VZV-IgM (5/7). Retrospective cases- OPXV antibodies in blood: western blot (49/72); HI (51/70); neutralization assay (39/72)	Humans feeding upon several wild animals, including squirrels	Squirrel-to-human, human-to-human	[113]
	2001	Fever, enlarged lymph nodes, lesions	Swabs, crusted scabs	Mpox-PCR, VZV-PCR, EM, virus isolation	Mpox-PCR (7/14); EM (5/14; poxvirus); Virus isolation (4/14; poxvirus) VZV-PCR (5/14); EM (1/14; Herpes virus)	None reported	None reported	[142]
	2001-2004	Skin lesions, vesicular rash	Crusted scabs, vesicle fluid	OPXV-specific PCR, virus isolation, Sanger sequencing	OPXV-PCR (52/136); Virus isolation (48/136)	None reported	None reported	[115]

	2005-2007	Rash	Vesicle fluid, scabs	Illumina Genome Analyzer IIx, Illumina MiSeq, Sanger sequencing	Genome sequencing (23/29)	None reported	Human-to-human	[9]
	2005-2008	Fever, vesicular-pustular rash	Lesion swab, crust samples	Mpox-real time PCR, VZV-real time PCR	Real-time PCR (633/1286; Mpox-positive only); (152/1286; co-infected with Mpox and VZV); (278/1286; VZV positive only); (95/1286; negative for Mpox and VZV)	No contact with animals	None reported	[88]
	2007-2011	Skin lesions and rash in patients. Miscarriage of pregnancy, foetal death	Blood, peritoneal fluid of fetus, tissues of the fetus and placenta	PCR, Real-time PCR, IHC	PCR (4/4); Real-time PCR (4/4); IHC (1/1)	None reported	Mother-to-foetus	[40]
	2008-2009	Skin lesions and rash	Vesicular or pustular exudates on blotting paper, crusted scabs	OPXV-real-time PCR, Mpox-PCR-RFLP, pyrosequencing	OPXV-real time PCR and Mpox-PCR-RFLP (13/25)	None reported	Human-to-human	[170]
	2009-2014	Rash, lesions, fever, lymphadenopathy, crusts on palms and hands	Lesion swabs, crust samples, blood	Mpox-qPCR, VZV- qPCR, virus isolation, EM	Mpox-PCR and VZV-PCR dual positive (40/427); EM (2/4; poxvirus, 2/4; herpesvirus virions)	No contact with animals	None reported	[8]
	2009-2014	Fever, rash, nausea, cough, chills, sore throat, mouth ulcers,	Vesicular swabs, crust	OPXV-real-time PCR, Mpox-real-time PCR,	Mpox-real-time PCR (333/752);	None reported	Human-to-human	[87]

		headache, lymphadenopathy, pruritis, malaise, fatigue, sensitivity to light, conjunctivitis, bedridden		VZV-real-time PCR	VZV-real-time PCR (383/752)			
	2010	Vesicular pustular eruptions with lesions, fever, lymphadenopathy (inguinal, axillary, and/or cervical), and/or pustules or crusts on the palms of the hands or soles of the feet	Vesicular or pustular lesion fluid, lesion crust, vesicular or pustular lesion roof	MPX/OPX gene expert assay (multiplex real-time PCR), Mpox-specific real time-PCR	Mpox-real time PCR (25/50; crust specimens); Mpox-real time PCR (63/114; vesicular fluid specimens). MPX/OPX gene Xpert assay: (23/23; crust specimens); (60/61; vesicular swabs)	None reported	None reported	[128]
	2011-2014	Fever, rash, cough, swollen face	Vesicular swab, crust, blood	PCR, Illumina sequencing	Mpox-PCR (3/6); VZV-PCR (1/6); Illumina sequencing-partial Mpox genes (3/3)	History of feeding upon monkeys	Animal-to-human, via bush meat	[114]
	2011-2015	Fever, coughing, lymphadenopathy, dysphagia, rash, headache, skin lesions, buccal ulcers, conjunctivitis, photophobia	Vesicular swab exudates, crust, blood	OPXV- real-time PCR, Mpox- real-time PCR, VZV- real-time PCR	OPXV- real-time PCR (1057/1658); Mpox- real-time PCR (775/1057); Mpox- real-time PCR and VZV- real-time PCR (169/1057)	Contact with animals due to occupational exposure or food habits	Animal-to-human; human-to-human	[85]
	2013	Fever, vesicular rash	Vesicular or ocular swab, crust specimens	OPXV- real-time PCR	OPXV- real-time PCR (50/63)	None reported	Human-to-human	[171]

	2013	Fever, vesicular rash	Vesicular or ocular swab, crust specimens	OPXV- real-time PCR	OPXV- real-time PCR (20/63)	None reported	Human-to-human	[197]
Nigeria, Liberia, Sierra Leone	1970-1971	vesiculopustular rash, lesions, fever, sore throat, malaise, headache, severe prostration, sweating	Blood, crust	Virus isolation, EM, agar gel test, HI	HI (2/6; Vaccinia virus); EM (3/3; poxvirus particles in vesicular fluid samples); Virus isolation (3/3; vesicular fluid, and 3/4; crust specimens); agar-gel test (3/4; crust specimens)	Patients either ate monkeys or had contact with internal organs after butchering	Monkey-to-human, Human-to-human	[61]
Nigeria, Liberia, Sierra Leone	1970-1971	Skin lesions, crusts	Vesicular fluid, crust	Virus isolation, EM, agar gel test	Virus isolation (1/1; skin lesions, 4/4; vesicular fluid, 3/5; crust specimens. EM (1/1; skin lesions, 4/4; vesicular fluid, 3/3; crust. Agar gel test (1/1; skin, 1/1; vesicular fluid, 3/3; crust.	None reported	None reported	[59]
Nigeria, DRC, Liberia, Ivory Coast, Sierra Leone	1970-1979	Fever, rash, skin lesions	Skin scrapings, blood	Virus isolation, EM, precipitation-in-gel test, HI, complement fixation, RIA	Virus isolation (32/47); EM (38/47); Precipitation in-gel test (20/47); RIA (17/47); Complement fixation (3/47)	One child who developed a rash had contact with a dead squirrel two weeks before onset of disease symptoms	Human-to-human	[60]
Nigeria, Ivory Coast	1976	None reported	Blood	OPXV-IFA, Mpox-IFA, virus isolation	OPXV-IFA (3/3); Mpox-IFA (3/3);	Contact with monkeys	Monkey-to-human	[126]

					virus isolation (1/3)			
Nigeria	2017	Fever, rash, headache, malaise, sore throat	Blood, lesion swab, crust, pus, blood on skin	Real-time PCR, ELISA IgM, genomic sequencing	Mpox- confirmed (42/107). No details on positivity rate using different methods.	Contact with monkeys	Human-to-human, within family	[83]
	2017-2018	Vesiculopustular rash, fever, headache, pruritus, lymphadenopathy	Blood, lesion swab, crust (dried rash debris-serum, pus or blood on the skin surface)	Mpox-real time PCR, Mpox-ELISA IgM, OPXV-ELISA IgG, virus isolation, Illumina MiSeq, Sanger sequencing	Mpox-real-time PCR (104/253); Mpox-ELISA IgM (14/253); OPXV-ELISA IgG (15/135); Genome sequencing (7 Mpox whole genomes)	Contact with monkeys, rodents, and wild animals for bush meat	Human-to-human, in households and a prison facility, and to healthcare workers, animal-to-human	[12]
Singapore, United Kingdom, Israel	2018	Pustular rash	Pustule swab	Virus isolation, Illumina MiSeq, Nanopore MinION sequencing	Virus isolation (6/6); Illumina MiSeq (6/6); Nanopore MinION (6/6)	None reported	Human-to-human (First exportation of Mpox from Africa via air travel)	[68]
Singapore	2019	Fever, muscle aches, chills, nodular skin lesions	Blister fluid	EM, Mpox-PCR, Sanger sequencing	Mpox- PCR (1/1); EM (1/1; poxvirus particles); Sanger sequencing (1/1)	None reported	None reported	[198]
	2019	Fever, chills, myalgia, rash, vesiculo-pustular lesions, cervical and inguinal lymphadenopathy	Blood, lesion swab, vesicle fluid	OPXV- PCR, Mpox- PCR, EM, Illumina MiSeq	OPXV- PCR (1/1); Mpox-PCR (1/1); EM (1/1; poxvirus particles); Illumina MiSeq (1/1)	Traveller fed upon barbequed bushmeat, suspected reason of transmission	None reported	[70]

Central African Republic	2001-2018	Skin rash	Blood, scab, pus	virus isolation, PCR, real-time PCR, Illumina MiSeq	PCR (10/10); Real-time PCR (10/10); virus isolation (10/10); Illumina MiSeq (10/10)	Contact with wild reservoirs	Animal-to-human, Human-to-human	[112]
	2012	Fever, myalgia, skin lesions, oedema of hands, lower legs and feet, weakness	Vesicular fluid, lesion biopsy, blood	Mpox- real-time PCR	Mpox- real-time PCR (2/2)	Contact with squirrels through hunting. One patient was bitten by a squirrel	Squirrel to human through biting or contact	[6]
	2016	Fever, skin rash, pruritus and cervical and/or inguinal adenopathy	Blood	PCR	PCR (3/7)	Index case patient fed upon a dead squirrel (<i>Xerus erythropus</i>)	Squirrel-to-human, human-to-human	[158]
	2018	Maculopapular rash and lesions, fever	Blood or pus	PCR, real-time PCR, ELISA IgG	PCR (5/5); Real-time PCR (5/5); ELISA IgG (6/11)	Contact with three small mammals through butchering	Human-to-human. Intrafamilial transmission	[3]
Republic of Congo	2003	Fever, rash, headache, malaise	Lesion swabs, blood	OPXV-PCR, Mpox-PCR OPXV-ELISA (IgG, IgM)	OPXV-PCR (4/4); Mpox-PCR (4/4); OPXV-ELISA IgM (3/8); OPXV-ELISA IgG (3/8)	One patient had a pet monkey (<i>Cercopithecus sp.</i>)	Human-to-human	[121]
	2003	Fever, vesiculo-pustular rash	Blood	OPXV-ELISA (IgM, IgG)	ELISA IgG (566/994); ELISA IgM (17/994)	Hunting and carcass preparation	Animal-to-human suspected	[195]
	2007	Pustular rash, palm and sole lesions	Blood	OPXV-ELISA (IgM, IgG); VZV-ELISA IgG	OPXV-ELISA IgG (3/73); OPXV-ELISA IgM (0/72); VZV-ELISA IgG (7/44);	None reported	None reported	[123]

					OPXV-ELISA IgG (10/17; smallpox vaccine related)			
Cameroon	2017	No disease symptoms (asymptomatic individuals)	Blood	OPXV-ELISA (IgM, IgG)	OPXV-ELISA IgG (43/125; smallpox vaccinated); OPXV-ELISA IgG (4/63; non-smallpox vaccinated); OPXV-ELISA IgM (1/63)	One person with OPXV-anti IgM titre was involved in selling, cooking, and eating of Gambian rats (<i>Cricetomys spp.</i>) and sun squirrels	Animal-to-human transmission suspected in villagers and sanctuary staff	[134]
	2018	Fever, malaise, body aches, maculopustular rash, pharyngitis or sub-mandibular or cervical lymphadenopathy	Biopsy of skin lesions, swab of skin lesions, blood	OPXV- real-time PCR, Mpox- real-time PCR	OPXV- and Mpox- real-time PCR (1/1; using biopsy, and swab of skin lesions, and blood); OPXV- and Mpox- real-time PCR (0/6; using blood collected between 14-21 days after onset of rash)	None reported	None reported	[108]
Sierra Leone	2007	None reported	Blood	OPXV-ELISA IgG, OPXV-ELISA IgM	OPXV-ELISA IgG (160/1536); OPXV-ELISA IgG (11/866; non-smallpox vaccinated group); OPXV-ELISA IgM (6/313)	None reported	None reported	[133]
	2017	Fever, malaise, body aches, vesicular skin	Vesicular swab, blood	Mpox- ELISA IgG, Mpox- real-	Mpox-ELISA IgG (1/1; using	The patient reported hunting	Squirrel-to-human	[109]

		eruptions, enlarged cervical lymph nodes, dysphagia		time PCR, Sanger sequencing	day 12 and day 55 blood samples); Mpox- real-time PCR (1/1; using day 12 blood sample); Sanger sequencing (1/1; partial genome)	and feeding upon squirrels \approx 10 days before the onset of disease		
Sudan	2005-2006	Fever, papular rash, vesiculopustular rash, cough, throat and joint pain, lymphadenopathy, skin eruptions, inflammation of nasal mucous membranes, enlarged cervical lymph nodes	EDTA-whole blood, dried blood, vesicular swabs, crust specimens	OPXV- PCR, Mpox- PCR, OPXV-IgG ELISA, OPXV- IgM ELISA, virus isolation, Sanger sequencing	OPXV- and Mpox- PCR (3/19; using samples collected between 5 to 13 days after onset of rash); virus isolation (3/3); OPXV- IgG and IgM ELISA (3/19; samples collected between 25 and 70 days after onset of rash); OPXV- IgG ELISA (4/19; samples collected between 36 and 78 days after onset of rash)	Some of the case patients were suspected of being bitten by an infected animal. No contacts with wild animals were reported by the patients	Human-to-human	[13]
USA	2003	Rash, fever, chills, cough, sore throat, swollen neck, headache, vomiting, vesicular lesions on palms and soles of feet, lymphadenopathy	Blood	Blood biochemistry, chest, and neck radiographs (X-rays), CT scan, and physical examination	Physical examination and differential diagnosis along with the evidence of Mpox infection in three pet	Child became Mpox positive due to contact with pet prairie dog in the household, the first human case	Prairie dog-to-human	[66]

					prairie dogs concluded that the child was Mpox positive	of Mpox in non-endemic region		
	2003	Fever, malaise, headache, sore throat, dyspnea, vesiculopustular rash, enlarged tonsils, anorexia, malaise, cervical lymphadenopathy, brain edema, encephalopathy, and seizures	Skin lesions, blood, cerebrospinal fluid	OPXV- real-time PCR, Mpox-PCR, OPXV-IgM and IgG ELISA, virus isolation, IHC	OPXV- and Mpox- PCR (3/3; using skin lesions); Virus isolation (3/3; using skin lesions); IHC (2/2; using skin lesions); OPXV-IgM and IgG ELISA (3/3; using sera samples); OPXV-IgM ELISA (1/1; using cerebrospinal fluid); PCR and virus isolation (0/1; using cerebrospinal fluid)	Extensive contacts with two prairie dogs in household. The prairie dogs soon died from illness.	Prairie dog-to-human	[44]
	2003	Rash, fever, chills, sore throat, cough, sweats, headache, joint pain, keratitis, lymphadenopathy, miscarriage at 12 weeks of gestation	Blood, tissues	PCR, IHC, virus isolation, EM, OPXV- IgM and IgG ELISA	PCR (15/19); Virus isolation (9/19); IHC (12/19); EM (4/19) OPXV-IgM (15/17; using sera collected within 56 days after onset of rash, illness);	Veterinary staff, pet store employees, distributors, and household members, exposed to prairie dogs	Prairie dog-to-human	[11]

					OPXV-IgG ELISA (15/17)			
	2003	Rash	Skin lesions, acute- and convalescent-phase sera	IgM ELISA, IgG ELISA, PCR, virus isolation	IgM ELISA (34/36; using sera); IgG ELISA (29/36; using sera); PCR (36/36; using lesions); Virus isolation (36/36; using lesions)	None reported	None reported	[124]
	2003	Fever, chills, sweats, chills, skin lesions, persistent cough, and lymphadenopathy. Cellulitis, pharyngitis, myalgia, diarrhoea, nasal congestion, back pain	Tissues and skin biopsies	PCR, virus isolation, EM, IHC, Sanger sequencing	PCR (6/11); virus isolation (6/11); EM (4/11); IHC (4/11); Sanger sequencing (1/1; complete HA gene)	Distributors and household members, in contact with prairie dogs	Prairie dog-to-human	[65]
	2003	Rash, fever, lesions, headache, nonpruritic vesicles, lymphadenopathy, encephalitis	Acute- and convalescent-phase sera	IgM ELISA, IgG ELISA	IgM ELISA (1/57) IgG ELISA (3/26)	Contact with prairie dogs	Prairie dog-to-human	[5]
	2003	Fever, vesicular-pustular rash, sore throat, chills, myalgia, headache, encephalitis, adenopathy	Blood	IgG and IgM ELISA, PCR, IHC, virus isolation	PCR (3/4); IgG ELISA (5/6); IgM ELISA (5/7); IHC (2/2); virus isolation (3/3)	Frequent contact with prairie dogs	Prairie dogs-to-human	[92]
	2004	None reported	Cutaneous biopsies (retrospective study)	PCR, RFLP, IHC, EM, Sanger sequencing	PCR (3/3; for DNA polymerase gene, and HA gene); EM (3/3;	None reported	None reported	[90]

					poxvirus particles); IHC (3/3), Sanger sequencing (3/3; complete HA gene)			
	2021	Skin lesions, pustular rash, fever, cough, fatigue, vomiting, diarrhoea	Lesion swab	OPXV- real-time PCR, Mpox-PCR	OPXV- real-time PCR (1/1); Mpox- PCR (1/1)	None reported	Imported case via air travel from Nigeria	[69]
	2021	Discrete vesicles on forehead and nose, arms, trunk and thighs, cervical lymphadenopathy	Biopsy of an intact pustule, skin lesions	OPXV- real-time PCR, histopathology, virus isolation	OPXV- real-time PCR (1/1); virus isolation (1/1)	No contact with animals	Imported case via air travel from Nigeria	[10]
	2022	Fever, chills, headache, sore throat, malaise, rash, and pain in rectum	Lesion fluid	Mpox- PCR, IHC	Mpox- PCR (1/1) IHC (0/1; for Herpes simplex virus type 1, Herpes simplex virus type 2, and <i>Treponema pallidum</i>)	No contact with animals	None reported	[97]
	2022	Vesicular lesion, anogenital rash, oral lesion, perianal rash	Lesion swab (vesicular lesion)	OPXV- real-time PCR, Mpox-PCR, NGS	OPXV- real-time PCR (17/17); Mpox- PCR (17/17); NGS (Mpox genome was sequenced for confirmation)	No contact with animals	Human-to-human, attributed to sexual contact	[31]
UK	2018	Fever, skin rash, lymphadenopathy, maculopustular rash	Skin lesion swabs	Mpox- PCR, Genomic sequencing	Mpox- PCR (2/2); Genomic sequencing (2/2; Mpox vonfirmed)	No contact with animals	Two imported cases from Nigeria. Human-to-human transmission	[71]

	2018	Fever, lymphadenopathy, maculopustular rash, headache, sore throat, skin lesions, earache, eye pain	Skin lesion swabs	Mpox- PCR	Mpox- PCR (3/3)	No contact with animals	Human-to-human transmission due to contaminated hospital bedding	[181]
	2018-2021	Fever, headache, pleiomorphic skin lesions, pustular rash, night sweats, lymphadenopathy, groin swelling, conjunctivitis, pruritis	Blood, nose or throat swab, urine, lesion swab	PCR, OPXV-IFA (IgG and IgM)	PCR (7/7; nose or throat swabs); PCR (6/7; using blood); PCR (4/7; using urine) OPXV-IFA for IgM and IgG (0/4; using blood)	No contact with animals	Index, secondary or tertiary Mpox infections, either locally acquired or exported from Nigeria	[42]
	2019	Pustular rash, skin lesions	Blood, urine, throat swab and lesion swabs of the patient. Forty-two environmental samples (10 vacuum samples and 32 surface swabs), from patient's and sibling's residences	OPXV- real-time PCR, Mpox- real-time PCR, virus isolation, EM, Illumina MiSeq	OPXV- real-time PCR (1/1); Mpox- real-time PCR (1/1); Mpox- real-time PCR (37/42; using environmental samples); virus isolation (4/4; using different environmental samples); Illumina MiSeq (3/3; complete Mpox genomes, generated using three different samples); EM (1/1; using virus cultured from a towel)	No contact with animals	Imported Mpox case from Nigeria, via air travel. Mpox DNA was detected on multiple surfaces and objects at the patient's and sibling's residences	[105]

	2021	Rash, skin lesions	Lesion swabs	PCR, Sanger sequencing	PCR (3/3) Sanger sequencing (3/3; confirmed Mpox)	No contact with animals	Human-to-human transmission of imported Mpox from Nigeria, in a family	[7]
Israel	2018	Maculopapular rash on face, trunk, neck, lower and upper extremities, lesions on soles and palms, chills, two ulcers on penis shaft, bilateral enlarged and tender lymph nodes in groin, one lesion on posterior aspect of left arm, fever	Scab, pustule, blood	PCR, EM, OPXV-IFA IgG, virus isolation, high throughput sequencing	PCR (1/1); EM (1/1); OPXV-IFA IgG (1/1); virus isolation (1/1); genome sequencing (1/1)	Patient discarded two rodent carcasses few days before the onset of disease symptoms	Patient had a travel history to Nigeria. Suspected transmission from rodent carcasses to human	[110]
	2018	Fever, skin lesions	Pustule swabs	PCR, Nanopore MinION and Illumina MiSeq sequencing	PCR (1/1); Nanopore MinION and Illumina MiSeq (1/1; generated complete genome)	Exposed to carcasses of dead rodents in Nigeria before travelling	Suspected transmission from rodent carcasses	[4]
	2022	Skin lesions	Oropharyngeal swabs, skin lesion exudate swabs, rectal swabs	Mpox- real-time PCR, plaque assay	Mpox- real-time PCR (32/32). Skin lesion swabs generated lower Cq values or higher viral load than oropharyngeal swabs for most patients	None reported	None reported	[145]
Italy	2022	Skin and genital lesions, inguinal lymphadenopathy,	Skin, genital and anal lesions, serum, plasma,	OPXV- real-time PCR, Mpox- PCR, Sanger	OPXV- real-time PCR (4/4); Mpox- PCR (4/4);	No contact with animals	Human-to-human,	[116]

		fever, asthenia, myalgia	seminal fluid, feces, nasopharyngeal swabs	sequencing, metagenomic NGS using ION Torrent PGM; Sanger sequencing	ION Torrent PGM (1/1; complete Mpox genome); Sanger sequencing (1/1; complete HA gene)		attributed to sexual contact	
	2022	Fever, skin lesions, maculopapular lesions	Skin lesion, plasma, serum, semen, urine	Mpox- real-time PCR, virus isolation, IFA	Mpox- real-time PCR (1/1; using skin lesion sample); IFA (1/1; detected IgG and IgM antibodies in serum on day 8 after onset of symptoms); Virus isolation (1/1; using semen)	No contact with animals. The study noted that Mpox DNA was detected in semen samples for longer duration than in skin lesions.	Human-to-human, attributed to sexual contact	[138]
	2022	Fever, skin lesions, oropharyngeal lesions	Oropharyngeal and skin lesion swabs, anal swab, urethral swab	OPXV- real-time PCR, Mpox- real-time PCR, virus isolation	OPXV- real-time PCR (33/33); Mpox- real-time PCR (33/33); virus isolation (using anal and urethral swabs)	While most patients were symptomatic, two were asymptomatic with no rash. The presence of Mpox DNA in urethral and anal swabs suggested transmission via sexual contact.	Human-to-human, attributed to sexual contact	[95]
	2022	Fever, sore throat, headache, fatigue, inguinal lymphadenomegaly, vesicular rash, skin lesions,	Pustule swab, nasopharyngeal swab	Mpox- real-time PCR	Mpox- real-time PCR (1/1)	No contact with animals. A patient was coinfectd with Mpox, SARS-CoV-2, and HIV.	Human-to-human, attributed to sexual contact	[175]

		pharyngodynia, pustules						
	2022	Pustular lesions, asthenia, headache, myalgia, chills, inguinal lymphadenopathy	Blood	Mpox- real-time PCR	Mpox- real-time PCR (1/1)	No contact with animals	Human-to-human, attributed to sexual contact	[177]
Spain	2022	Fever, skin lesions, influenza-like illness, sore throat, headache, lymphadenopathy (cervical, inguinal, axillary), proctitis, tonsillitis, exanthem	Throat swabs, skin swabs, anal swabs	Mpox- real-time PCR	181 Mpox- real-time PCR positive cases; Mpox- real-time PCR (178/180; 99% cases were PCR positive using oral swabs, 82/117; 70% cases were PCR positive using throat swabs, and 43/55; 78% cases were PCR positive using anal swabs	181 PCR confirmed cases of Mpox in Spain were investigated for transmission dynamics. 166/181 of positive cases were amongst patients who identified as MSM. Skin lesions were the most common clinical disease symptom in these cases. A large number of cases also had proctitis	Human-to-human, attributed to sexual contact	[176]
	2022	Skin lesions, myalgia, fatigue, odynophagia, malaise, proctitis, proctalgia, headache	Saliva, skin lesion swabs, nasopharyngeal swabs, rectal swabs, urine, semen, feces	OPXV- real-time PCR, Mpox- real-time PCR, Sanger sequencing	Mpox-real-time PCR (12/12); Mpox- real-time positive: saliva (12/12); skin lesions (12/12); rectal swabs (11/12); nasopharyngeal swabs (10/12); urine (9/12); feces	No contact with animals	Human-to-human, attributed to sexual contact	[178]

					(8/12); semen (7/9); Sanger sequencing (3/3; partial genomes)			
	2022	Fever, asthenia, myalgia, inguinal lymphadenopathy, proctitis, urethritis, rash, nasal congestion, cough	Vesicular lesion swabs	OPXV- real-time PCR, Mpox- PCR, EM, Illumina sequencing	OPXV- real-time PCR (48/48); Mpox- real-time PCR (48/48); Illumina sequencing (14/14; complete Mpox genomes); EM (1/1; poxvirus particles)	Samples obtained during first nine days after onset of clinical symptoms had highest viral loads with Ct < 25. Total 14 complete genomes from samples with Ct < 30 were sequenced.	Most Mpox confirmed cases (87.5%) were attributed to human-to- human transmission via sexual contact	[96]
	2022	Fever, rash exanthema, lymphadenopathy, asthenia, myalgia, headache, odynophagia, proctitis	Vesicular lesions, urine, pharyngeal exudates	Mpox- real-time PCR, Sanger sequencing	Mpox- real-time PCR (595/802); Sanger sequencing (2/2; partial genome)	Most cases included MSM. Several cases also had HIV coinfection	Human-to- human, attributed to sexual contact	[86]
	2022	Fever, proctitis, headache, myalgia, arthralgia, lymphadenopathy, pustular rash, maculopapular rash, perianal ulcers	Pustule swab	Mpox- real-time PCR	Mpox- real-time PCR (1/1)	The patient had existing HIV infection	Human-to- human, attributed to sexual contact	[174]
	2022	Fever, rash, lymphadenopathy, asthenia, sore throat, myalgia, vomiting, diarrhoea	Skin lesions	OPXV- real-time PCR	OPXV- real-time PCR (16/16; pediatric patients)	No contact with animals. Contact with contaminated material, household contact	Human-to- human transmission	[172]

Portugal	2022	Fever, lesions on genitals, rash, genital ulcers, exanthema, inguinal lymphadenopathy	Exudates or swabs from lesions, crusts	OPXV- PCR, Sanger sequencing, Nanopore MinION sequencing	OPXV- PCR (96/145); Sanger sequencing (partial Mpox genomes); Nanopore MinION sequencing (1/1)	No contact with animals	Human-to-human, attributed to sexual contact	[117]
	2022	Fever, macular rash, inguinal lymphadenopathy, skin lesions	Lesion swab	Mpox- PCR	Mpox- PCR (1/1)	No contact with animals	Human-to-human, attributed to sexual contact	[94]
France	2022	Fever, intense fatigue, chills, myalgia, severe anal pain, sore throat, enlarged cervical lymph nodes	Pharyngeal swab	OPXV- real-time PCR	OPXV- real-time PCR (1/1)	No contact with animals	Human-to-human, attributed to sexual contact	[179]
Belgium	2022	Vesicular perianal rash (1 patient only); other 3 patients were asymptomatic while being HIV positive	Oropharyngeal swabs, anorectal swabs, urine, convalescent-phase sera	OPXV- PCR, Mpox- PCR, virus isolation, Nanopore MinION sequencing, IFA	OPXV- PCR (4/224); Mpox- PCR (4/224); Virus isolation (2/3); MinION sequencing (1/1); IFA IgG (2/2). Anorectal swabs were PCR positive on day 0 but negative for Mpox DNA on days 21, 24, and 37	A retrospective analysis of patient samples visiting a sexual clinic. The patients were suspected of having suffered from gonorrhoea/chlamydia infections. One patient with painful vesicular perianal rash was misdiagnosed as a flare-up of herpes simplex	Human-to-human, attributed to sexual contact	[98]
Germany	2022	Fever, malaise, fatigue, myalgia, sweats,	Fluid from cutaneous	PCR	PCR (6/6; cutaneous blisters);	No contact with animals. Six	Human-to-human,	[146]

		lymphadenopathy, anal pain (occurred due to anal ulcer, anal abscess, anal fissure, proctitis, and retal ulcer)	blisters, seminal fluid		PCR (1/1; seminal fluid)	cases among MSM	attributed to sexual contact	
	2022	Pustular rash	Skin lesion	Mpox- PCR	Mpox- PCR (1/1)	No contact with animals. The patient was coinfectd with HIV and syphilis	None reported	[180]
	2022	Fever, malaise, joint, muscle and back pain, headache, papular skin lesions, fatigue, cough, inguinal lymphadenopathy, anal pain, vesicular skin lesions	Pustule swab, serum, oral lesion swab, plasma, semen, urine	OPXV- real-time PCR, Mpox- real-time PCR, virus isolation, Illumina sequencing, IFA	OPXV- real-time PCR (2/2); Mpox- real-time PCR (2/2); All samples except urine had detectable Mpox DNA. Virus isolation (1/1; using pustule swab, blood, and semen); IFA IgG (detectable only after 2 weeks of hospital admission)	No contact with animals. One patient was co-infected with HIV	Human-to-human, attributed to sexual contact	[99]
Switzerland	2022	Cutaneous lesions on a lip and chin, conjunctivitis, and itching eye (unidirectional)	Swabs of cutaneous lesions on the chin and one lip, conjunctivital swab	Mpox- PCR	Mpox- PCR (1/1; using swabs of cutaneous lesions and conjunctivitis)	The conjunctivital swab was Mpox positive. It was suspected that the patient acquired Mpox infection during ophthalmologic visit to the eye clinic	Suspected infection during ophthalmologic visit to the eye specialist	[100]

Greece	2022	Fever, rash, fatigue, myalgia	Swab of the rash	Mpox- PCR	Mpox- PCR (1/1)	No contact with animals. The patient had recently visited Portugal	Human-to-human, via sexual activity	[148]
India	2022	Fever, myalgia, maculopapular rash, skin lesions, enlarged cervical and inguinal lymph nodes, backache, headache, chills, cervical lymphadenopathy	Oropharyngeal swabs, nasopharyngeal swabs, blood, urine, lesion fluid, skin lesions	OPXV- real-time PCR, Mpox- real-time PCR, Illumina sequencing	OPXV- real-time PCR (2/2); Mpox- real-time PCR (2/2). All clinical samples of both patients except blood of patient 2 were MPXV positive. Illumina sequencing (2/2; cgenerated omplete genomes)	Two travelers from UAE to India were Mpox positive	Human-to-human	[104]
South Korea	2022	Fever, chills, sore throat, headache, skin lesions, perioral erosive lesions, maculopustular rash, penile ulcer	Skin lesion, oropharyngeal swab, nasopharyngeal swab, blood, crust specimen	Mpox- real-time PCR, conventional PCR, Sanger sequencing	Mpox- real-time PCR (1/1; using skin lesions and swab samples); Conventional PCR (1/1; using skin lesions and swab samples); Sanger sequencing (1/1)	First Mpox case of South Korea. A traveller (Korean national) who arrived in South Korea from Germany	None reported	[93]
	2022	Skin lesions	Skin lesion, oropharyngeal swab, nasopharyngeal swab	MPXV- PCR, OPXV- PCR, virus isolation, EM, Sanger sequencing	MPXV- PCR (1/1); OPXV- PCR (1/1); virus isolation (1/1; using skin lesion, oropharyngeal and	No contact with animals. First isolation of Mpox in South Korea	None reported	[140]

					nasopharyngeal swabs); EM (1/1; poxvirus particles); Sanger sequencing (1/1; generated partial genome)			
Australia	2022	Genital rash and lesions, skin lesions, pustules, fever, malaise	Rectal swab, throat swab, urine, swabs of derroofed skin lesions from the hand, calf, and trunk, combined nose-throat swabs	VZV- real-time PCR, HSV- real-time PCR, Mpox- real-time PCR, OPXV- real-time PCR, Mpox- real-time PCR, virus isolation, EM, Illumina sequencing	VZV- real-time PCR (0/1; using urine, rectal and throat swab); HSV- real-time PCR (0/1; using urine, rectal and throat swab); OPXV- real-time PCR (1/1; using skin lesions and nose-throat swab); Mpox- real-time PCR (1/1; using skin lesions and nose-throat swab); Virus isolation (1/1; using lesion swabs on hand and abdomen); EM (1/1; poxvirus particles); Illumina sequencing (1/1; generated whole genome)	Initial diagnosis was gonorrhea, then suspected superimposed bacterial cellulitis. Coinfection with HIV	Human-to-human, via sexual activity	[14]

Multi-country outbreaks (16 countries)	2022	Rash, skin lesions, fever, pharyngitis, lymphadenopathy, headache, fatigue, myalgia, proctitis or anorectal pain	Throat swabs, skin lesions	Mpox- real-time PCR	Mpox- real-time PCR (528 confirmed cases in 16 countries). A subset of 32 cases: Mpox- real-time PCR (22/32; using skin lesion samples, and 20/32 using throat swab samples)	There were 528 Mpox PCR confirmed cases in 16 countries during April-June 2022. This study reported a subset of 32 cases, 30 of which were cases including MSM	Human-to-human, attributed to sexual contact	[48]
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CAR = Central African Republic; DRC = Democratic Republic of the Congo; EM = Electron microscopy; HI = Hemagglutination inhibition; HSV = Herpes Simplex virus; IFA = Immunofluorescence, IgG = Immunoglobulin G; IgM = Immunoglobulin M; IHC = Immunohistochemistry; MSM = men who have sex with men; OPXV = Orthopoxvirus; PCR = Polymerase chain reaction; UAE = United Arab Emirates; UK = United Kingdom; USA = United States of America; VZV = Varicella zoster virus.