

# Smallpox and Monkeypox (Monkeypox): Very brief historical notes

## Varíola e Varíola dos macacos (Monkeypox): Brevíssimos apontamentos históricos

## Viruela y Viruela del Mono (Monkeypox): Notas históricas muy breves

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The word variola or smallpox, etymologically originates from the Vulgar Latin “varius”, being formed through the root “vari”, which is present in numerous entries, such as “various”, “variety” and “varicella”, the latter being the diminutive of smallpox and, having as a meaning, “marked”, or by extension, with “spots”.<sup>1,2,3</sup> According to some ancient reports, it is considered that it would have appeared initially in India or Egypt, being also described later with the Asian continent and still, in Africa since before the Anno Domini (A.D.), that is, of what is considered the Christian era.<sup>1,9</sup>

For some researchers, smallpox received this designation, due to the numerous spots that spread on the patient's skin, in the case of humans, and also on the crests of birds and on the udders, that is, the “udders” of cows ( *Bos taurus*).<sup>3,5</sup> The alchemist, physician and polymath “Abū Bakr Muhammad Zakariyyā Rāzī”, better known as Rhazes or Rasis (AD 865-925), elaborated clinical descriptions of smallpox and also of measles, thus facilitating , that the signs and symptoms of these diseases could be distinguished, facilitating their diagnosis, treatment and choice of therapies.<sup>2</sup>

In this context, smallpox is known historically, as a disease, already recognized, for example, with the Ming dynasty (1368 - 1644 AD) and also identified in the Empire of the Great Ming, having as founder of this royal family, Chu Yuan-Chang , victim of this disease and who had his skin heavily injured by this disease.<sup>3</sup> Aware of the historicity of smallpox, its identification is easily verified in several nations and in its derivations, where, in the context of public health, it was possible to verify in some studies that the first vaccines and/or immunobiologicals were implemented for their combat and control and, tested in seven (07) people, classified as “criminals” and of English origin, this fact being dated in the 18th century.<sup>4,6</sup>

For some researchers, another episode that was also known as the “*first report of the development of smallpox research*”, could be classified as abusive, inhuman and illegal, occurred in the year 1721, when an experiment was implemented, with the testing implemented in people who were inmates in the prison system.<sup>4,6</sup> In this context, what was called the “Greek method” was used, aiming to avoid the acquisition of smallpox, consisting in making “cruciform” drawings, together with the people's cheeks and also, in their chins, using for this activity, a needle that had been soaked with the secretion of the lesions of another person who was infected by this complex and violent disease.<sup>4,6</sup>

The complexity and magnitude of this disease is such that smallpox was used in the past, including as a biological weapon, that is, in the manipulation of various pathogens, as bacteria, fungi, protozoa or even viruses, aiming at extermination. of living beings.<sup>6,7</sup> The manipulation of infectious microorganisms in the form of biological-type artifacts is pointed out in relation to the armies of Hernán Cortez, during the theaters of war that took place in Mexico, which is the main cause of the defeat of pre civilization. -Colombian Aztec, who did not have any type of immunity against this powerful and deadly pathological agent.<sup>6,7</sup>

As identified in other studies and research, smallpox was also used as a “biological weapon”, by countless military troops in belligerence events, in the processes of invasion, colonization and exploitation of indigenous societies, mainly in several regions belonging to the American continent.<sup>7,8</sup> After the combination of global efforts, as well as a series of strategies, policies, articulations and health measures implemented jointly by several nations, guided by the World Health Organization (WHO), in conjunction with the Ministries of Health (MOH) international studies, smallpox had a reduction in its mortality, transmissibility and, consequently, was eradicated in the last decade of the seventies (70), constituting this phenomenon as a true victory for public health.<sup>10</sup>

In the efforts implemented to eradicate smallpox in the 1970s, it was possible to isolate the virus from a patient who had suspected infection, and who came from the Democratic Republic of Congo (DRC).<sup>11,12,13</sup> As a form of to combat and control this public health issue, several measures were carried out and through a global and joint effort, on May 8, 1980, at the 33rd World Health Assembly (33rd WHA), it was officially declared by the World Health Organization Health (WHO) that the world and all its people were free from “smallpox”.<sup>14</sup>

In the first months of 2022, it was identified in several nations, which is known as “monkey pox”, or also “*monkey pox*” or even “*monkeypox*”, being it a viral disease, which normally infects primates and rodents.<sup>2,11,15</sup> This viral zoonosis is caused by the “*Monkeypox*” type virus, belonging to the “*Orthopoxvirus*” genus and part of the “*Poxviridae*” family, having as an incubation period, usually the amount of six (06 ) to thirteen (13) days and, dermatological manifestations in the form of pustules, that is, blisters along the skin of the infected person.<sup>2,11,15</sup>

Among the signs identified with the person who contracted monkeypox, hyperthermia or fever above 38.5°C, headache, myalgia, low back pain, profound weakness, in addition to the presence of swollen lymph nodes, can be mentioned.<sup>11, 12,15</sup> In addition to performing a physical examination with the patient, aiming to identify the dermatological manifestations among the aforementioned signs and symptoms, it is also important to carry out a laboratory diagnosis, as a component for its identification and surveillance of

this disease, through the request of exams specific.<sup>10,11,12,15</sup>

According to the Pan American Health Organization (PAHO), when analyzing the issue of monkeypox in fifty-five (55) nations located in the Americas, the highest preponderance identified was in the United States (USA) with 68.7% (n =4,897) confirmed cases, until July 29, 2022, as shown in table 01.16 In the second, third and fourth place, Brazil, Canada and Peru were identified, respectively, which accounted for 13.7% (n= 978), 11.3% (n=803) and 3.8% (n=269).<sup>16</sup>

**Table 1** – Presentation of the frequency of confirmed, suspected and probable cases by percentage of monkeypox by country/territory in the Americas:\*, \*\*, \*\*\*, \*\*\*\*, \*\*\*\*\*

Country	Confirmed	%	Likely	%	Suspect	%
USA	4.897	68,7	-	-	-	-
Brazil	978	13,7	-	-	544	97
Canada	803	11,3	104	98,1	-	-
Peru	269	3,8	-	-	2	0,4
Mexico	59	0,8	-	-	-	-
Chile	55	0,8	1	0,9	-	-
Argentina	20	0,3	-	-	-	-
Puerto Rico	13	0,2	-	-	12	2,1
Colômbia	12	0,2	-	-	-	-
Costa Rica	3	0,0	-	-	2	0,4
Ecuador	3	0,0	-	-	-	-
Dominican Republic	3	0,0	1	0,9	-	-
Jamaica	2	-	-	-	-	-
Bahamas	1	-	-	-	1	0,2
Barbados	1	-	-	-	-	-
Bermuda	1	-	-	-	-	-
Martinique	1	-	-	-	-	-
Panama	1	-	-	-	-	-
Venezuela	1	-	-	-	-	-
anguilla	-	-	-	-	-	-
antigua and barbuda	-	-	-	-	-	-
aruba	-	-	-	-	-	-
Belize	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-
Bonaire	-	-	-	-	-	-
Cuba	-	-	-	-	-	-
curacao	-	-	-	-	-	-
dominica	-	-	-	-	-	-
El Salvador	-	-	-	-	-	-
Grenade	-	-	-	-	-	-
Guadeloupe	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-
Guyana	-	-	-	-	-	-
French Guiana	-	-	-	-	-	-
Haiti	-	-	-	-	-	-
Honduras	-	-	-	-	-	-
Cayman Islands	-	-	-	-	-	-

Falkland Islands	-	-	-	-	-	-
Turks and Caicos Islands	-	-	-	-	-	-
US Virgin Islands	-	-	-	-	-	-
British Virgin Islands	-	-	-	-	-	-
Montserrat	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-
Saint Lucia	-	-	-	-	-	-
Saint Eustace	-	-	-	-	-	-
Saint Bartholomew	-	-	-	-	-	-
Saint Kitts and Nevis	-	-	-	-	-	-
Saint Martin	-	-	-	-	-	-
Saint Martin	-	-	-	-	-	-
Saint Peter and Miquelon	-	-	-	-	-	-
Saint Vincent and the Grenadines	-	-	-	-	-	-
Suriname	-	-	-	-	-	-
Trinidad and Tobago	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-
<b>Total</b>	<b>7.123</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>561</b>	<b>100</b>

Source: Adapted from PAHO, 2022.

\* The authors are faithful to the sources consulted; \*\* The data presented are updated until 07/29/2022, at 12:00 pm; \*\*\*According to PAHO, official sources include information submitted by the International Health Regulations Focal Points (IHR) or published on the websites of Ministries of Health, Health Agencies or similar at national or subnational level before 16:00 GTM -5 and reproduced by PAHO/WHO at 18:00 GTM-5, Monday through Friday; \*\*\*\* Due to several factors, the data presented may undergo some type of change(s). ; \*\*\*\*\* According to PAHO, panel data is updated once a day between 5:30 pm-6:00 pm GTM-5.

When analyzing the issue of the number of identified cases of monkeypox in Brazil, until 07/29/2022 at 12:00 pm, the universe of 978 records was accounted for, with the Southeast region (SE) having the highest concentration of cases. cases totaling 92.7% (n=907) and the North region (N) the smallest with 0.2% (n=02), as shown in table 02.<sup>17</sup> In the second, third and fourth place, the Center region was identified -West (CO), South (S), and Northeast (NE), which respectively recorded values of 3% (n=29), 2.7% (n=26) and 1.4% (n= 14).<sup>17</sup>

**Table 2** – Presentation of the frequency of registered cases and percentage of monkeypox, by regions in Brazil, 2022 (n=978):\*,\*\*,\*\*\*

Regions	f	%
Southeast	907	92,7
Midwest	29	3
South	26	2,7
North Est	14	1,4
North	2	0,2
<b>Total</b>	<b>978</b>	<b>100</b>

Source: Adapted from MS, 2022.

\* The authors are faithful to the sources consulted.; \*\* The data presented are updated until 07/29/2022, at 12:00 pm; \*\*\* Due to several factors, the data presented may undergo some type of change(s).

When analyzing the issue of the number of registered cases of monkeypox in Brazil, by federative units (UF), until 07/29/2022 at 12:00 pm, it was possible to verify that the state of São Paulo (SP) registered the highest concentration, accounting for 76.1% (n=744) and the lowest, were identified in

the states of Acre (AC), Mato Grosso (MT) and Tocantins (TO), each with 0.1% (n=1), as shown in table 03.<sup>17</sup> As a way of combating, controlling and mitigating the direct and indirect impacts generated by the issue of monkeypox in Brazil, its highest body responsible for the health issue, held on 07/29/2022 the first meeting of the Emergency Operation Center (COE), aiming to implement a "Contingency Plan", in relation to the outbreak of this disease.<sup>17,18</sup>

**Table 3** - Presentation of the frequency of registered cases of monkeypox, by federative units (FU) and percentage, in Brazil, 2022 (n=978):\*, \*\*, \*\*\*

UF	f	%
São Paulo	744	76,1
Rio de Janeiro	117	12
Minas Gerais	44	4,5
Paraná	19	1,9
Distrito Federal	15	1,5
Goiás	13	1,3
Bahia	5	0,5
Ceará	4	0,4
Santa Catarina	4	0,4
Pernambuco	3	0,3
Rio Grande do Sul	3	0,3
Espírito Santo	2	0,2
Rio Grande do Norte	2	0,2
Acre	1	0,1
Mato Grosso	1	0,1
Tocantins	1	0,1
<b>Total</b>	<b>978</b>	<b>100</b>

Source: Adapted from MS, 2022.

\* The authors are faithful to the sources consulted.; \*\* The data presented are updated until 07/29/2022, at 12:00 pm; \*\*\* Due to several factors, the data presented may undergo some type of change(s).

In this way, the actions and strategies developed by the MS COE also count on the active participation of several bodies of fundamental importance for health in Brazil, aiming to facilitate the fight and mitigation of the impacts related to monkeypox, together with all federative units. (UFs) and constituent municipalities.<sup>18</sup> Among the various bodies participating in the MS COE, the National Council of Health Secretaries (CONASS), the National Council of Municipal Health Secretaries (CONASEMS), the Pan American Organization of Health (PAHO), the National Health Surveillance Agency (ANVISA) and the National Institute of Infectious Diseases Evandro Chagas of the Oswaldo Cruz Foundation (FIOCRUZ).<sup>18</sup>

In a recent study that analyzed the current outbreak of monkeypox, published in the British Medicine Journal (BMJ), new signs and symptoms associated with people who reported the disease were identified.<sup>19</sup> In this way, an observational analysis was carried out in a universe of 197 patients, being possible to describe mainly the presence of signs such as penile edema and also pain in the rectal region, being diagnosed in patients who were being treated in London, England.<sup>19</sup>

Another issue pointed out by this publication is the community transmission of monkeypox in London and, possibly, in other European nations, thus requiring that efforts and strategies to contain this infectious disease be redoubled.<sup>19</sup> The greatest preponderance among the people analyzed in the present research, they declared themselves to be gay, bisexual and men who have sex with men, they were aged between 21 and 67 years old and an average of 38 years old, and all of them had lesions close to the skin, most commonly identified in the genitals (56.3 %) or in the perianal region (41.6%).<sup>19</sup>

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