

Diagnosis of Smallpox

Smallpox is a disease that can be easily diagnosed by the average health worker. In this series of slides, typical cases of smallpox are presented. Such cases account for 9 out of 10 patients who are seen. Because smallpox is sometimes confused with chickenpox, pictures of patients with chickenpox are included for comparison. **In the post-eradication era, the detection of a case of smallpox is a public health emergency.**

- Notify the health authority immediately.
- Isolate the patient.
- Vaccinate all contacts.



World Health Organization

The distribution of the smallpox rash is usually similar to that shown here. It is most dense on the face, arms and hands, legs and feet. The trunk has fewer pocks than the extremities.





Note in this slide that the density of the rash is greater on the face than on the body.

Pocks are usually present on the palms of the hands and on the soles of the feet.



**This patient has chickenpox.
Chickenpox is the most
important disease likely to be
confused with smallpox. It is
caused by a different virus.**

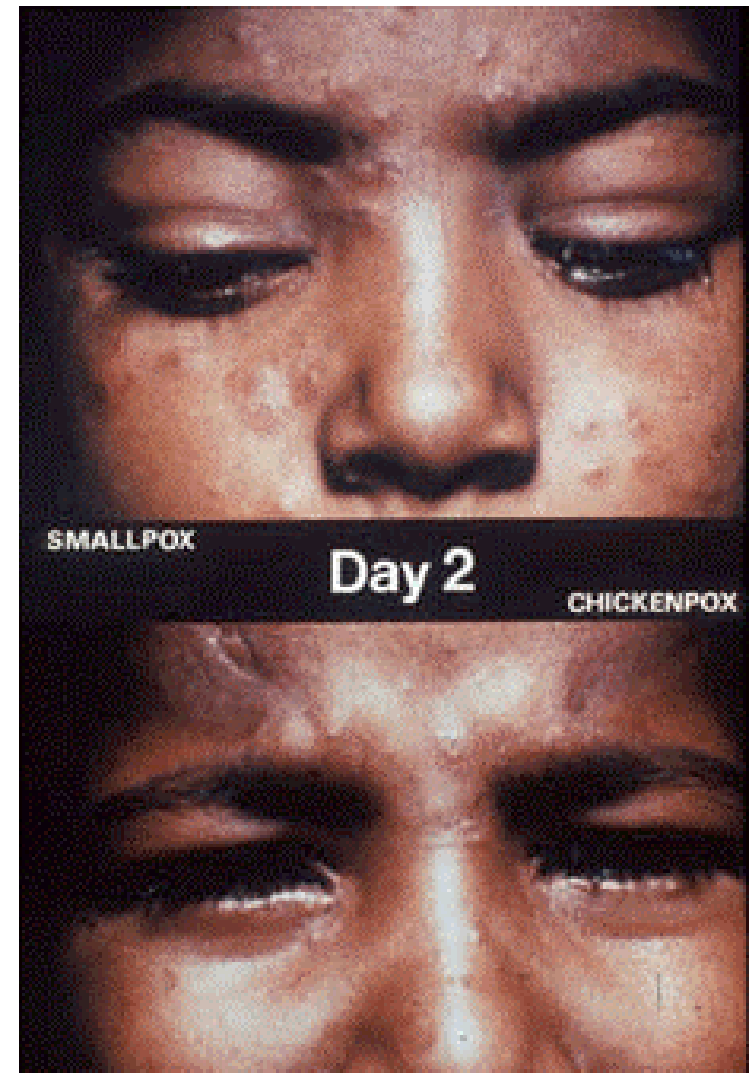


	SMALLPOX	CHICKENPOX
<i>FEVER</i>	2 to 4 days before the rash	At time of rash
<i>RASH</i>		
Appearance	Pocks at same stage	Pocks in several stages
Development	Slow	Rapid

In smallpox, fever is present for 2 to 4 days before the rash begins, while with chickenpox, fever and rash develop at the same time.

All the pocks of the smallpox rash are in the same stage of development on any given part of the body and develop slowly. In chickenpox, the rash develops more rapidly, and vesicles, pustules, and scabs may be seen at the same time.

During the first day or two of rash it may be impossible, from the rash alone, to differentiate smallpox from chickenpox.



On day 3, the rash associated with each of the diseases continues to look very similar.



By day 5, however, it is perfectly clear that the patients have different diseases. The patient with chickenpox shows several different stages of rash. There are papules, vesicles and pustules present. However, all of the smallpox lesions are at the same stage of development. Most of the chickenpox lesions are small, between 1 and 5 mm, while the smallpox lesions are uniformly larger, between 5 and 10 mm. The smallpox pustules are firm and deeply embedded in the skin while the lesions of chickenpox are much more superficial.

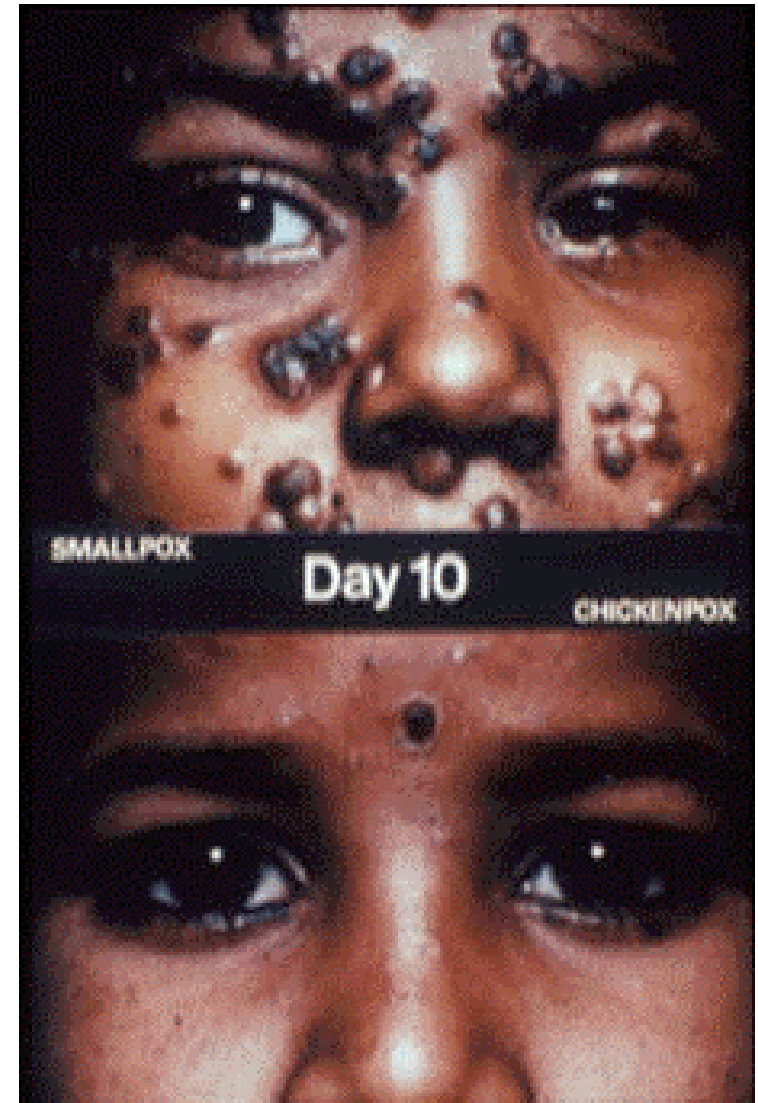


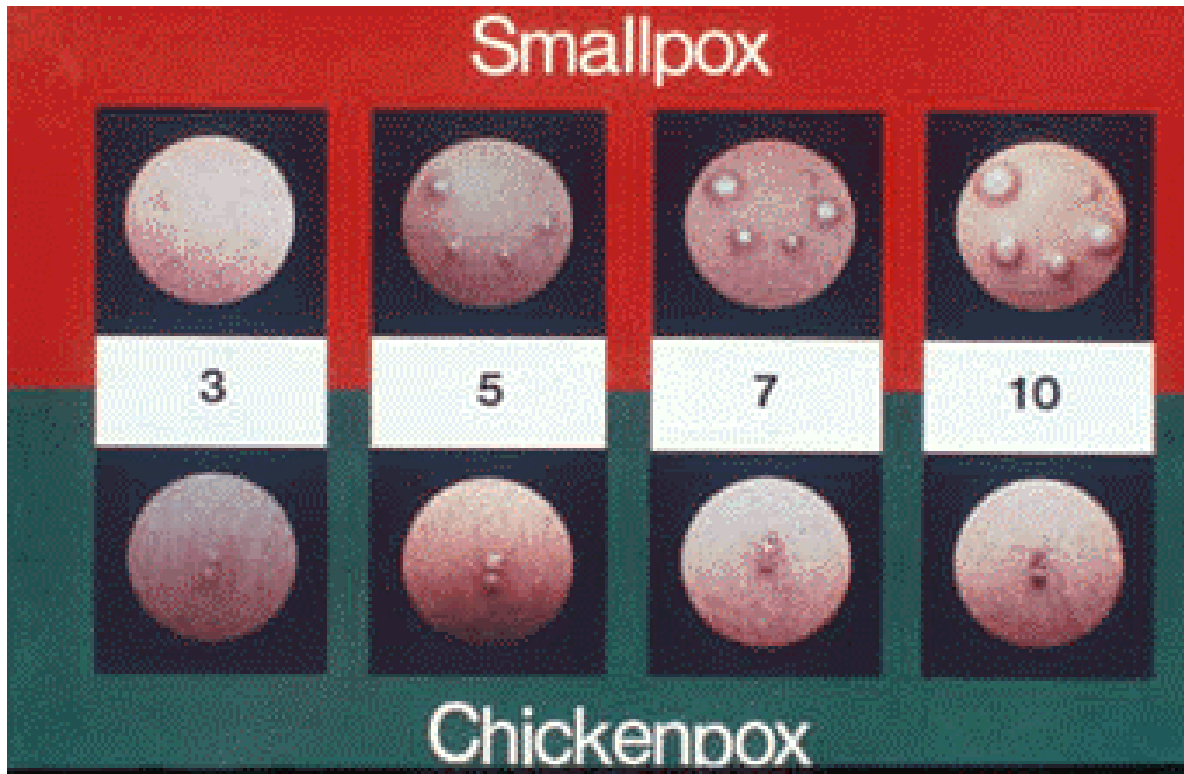
By day 7, most of the chickenpox lesions have already formed scabs and some scabs, in fact, have already separated. Scabs over the smallpox lesions have not yet formed.



On day 10 of the rash, most of the chickenpox scabs have fallen off, while the smallpox scabs are just beginning to form.

In chickenpox, the scabs may form as early as day 3 or 4 of rash and normally fall off by day 14.





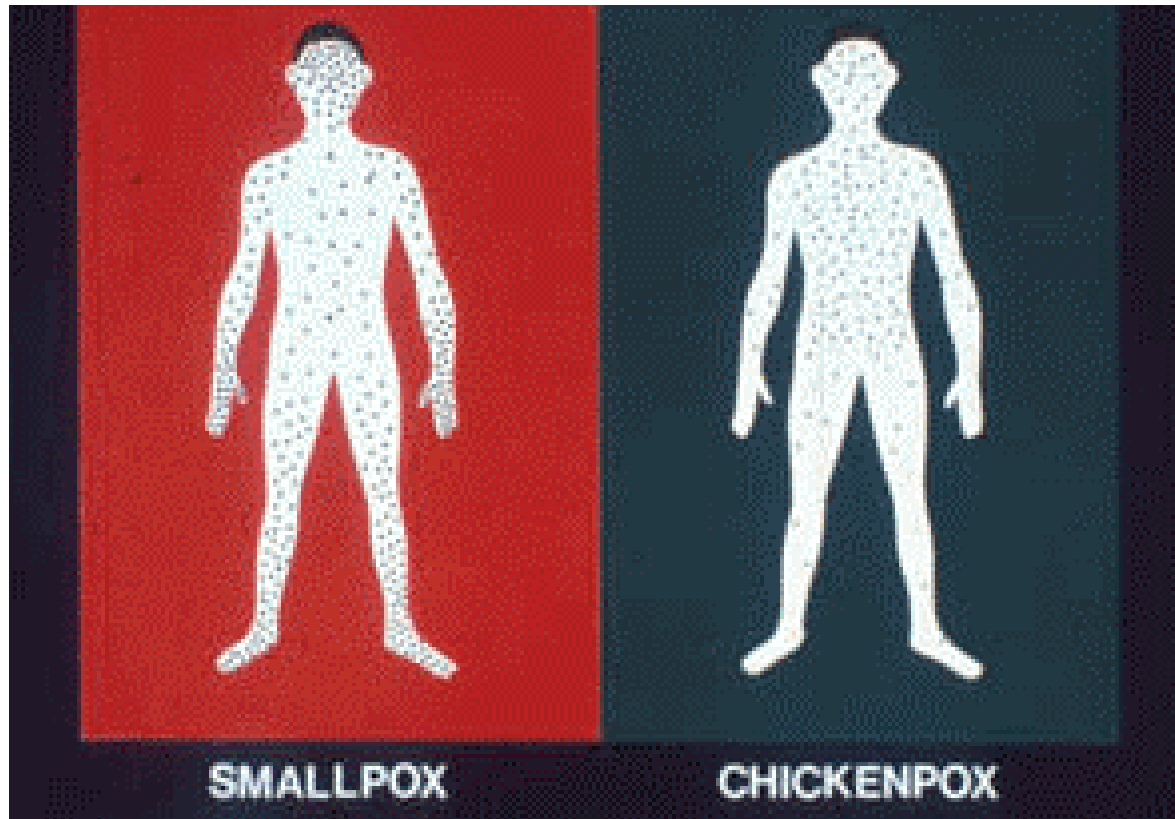
In this slide, pictures of the rash of chickenpox and smallpox are seen on each of four different days: day 3, day 5, day 7, and day 10. Note again that the chickenpox scabs have begun to form on day 7 while, in smallpox, no scabs are observed even on day 10.

	SMALLPOX	CHICKENPOX
<i>RASH</i>		
Distribution	More pock on arms and legs	More pocks on body
On palms and soles	Usually present	Usually absent

The distribution of rash is also important in diagnosis.

In smallpox, more pocks usually occur on the arms and legs than on the body. In chickenpox, more pocks occur on the body.

In smallpox, lesions are commonly found on the palms and soles. In chickenpox, however, there are very few or no lesions on the palms and soles.



The relative density of rash on different parts of the body should be carefully observed. This diagram illustrates the differences that are usually seen.

In smallpox (shown in the lower photograph), pocks are usually present on the palms of the hands.

In chickenpox there may be few or no lesions on the palms of the hands.



Similarly, on the soles of the feet, the smallpox patient may have many lesions but the chickenpox patient will have few or none.



	SMALLPOX	CHICKENPOX
<i>FEVER</i>	2–4 days before the rash	At time of rash
<i>RASH</i>		
Appearance	Pocks at same stage	Pocks in several stages
Development	Slow	Rapid
Distribution	More pocks on arms & legs	More pocks on body
On palms & soles	Usually present	Usually absent
<i>DEATH</i>	More than 10%	Very uncommon

Note again the particular points that help to differentiate smallpox from chickenpox:

- in smallpox, the fever precedes the rash by 2 to 4 days,
- the pocks on any part of the body are at the same stage of development, and they develop slowly,
- the pocks are more numerous on the arms and legs than on the body,
- the pocks are usually present on the palms and soles,
- death following smallpox is not uncommon, while in chickenpox death is very rare.

When death occurs in a patient in whom chickenpox has been diagnosed, smallpox should always be suspected.