

# 18-month outcomes of surgical treatment for noma (cancrum oris): case series, Noma Children’s Hospital, Sokoto, Nigeria



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## Noma (cancrum oris)

- Rapidly progressing infection of the oral cavity
- Begins as a mouth ulcer and, within days, progresses to oedema followed by rapid necrosis
- Reported 90% mortality rate within two weeks after first symptoms if untreated
- Most frequently reported in low socio-economic settings in Africa and Asia
- Treatment with antibiotics, wound debridement and nutritional support reduce mortality and morbidity
- Sequelae include: displacement of the teeth, intense scarring and bony fusion between the maxilla and mandible, difficulty eating, seeing, talking and breathing
- Trismus is one of the most disabling sequelae
- Once infection inactive, complex surgical reconstruction needed



Noma patient in 1887, lived for only six days after admission to. Illustration: Swain, 1986.

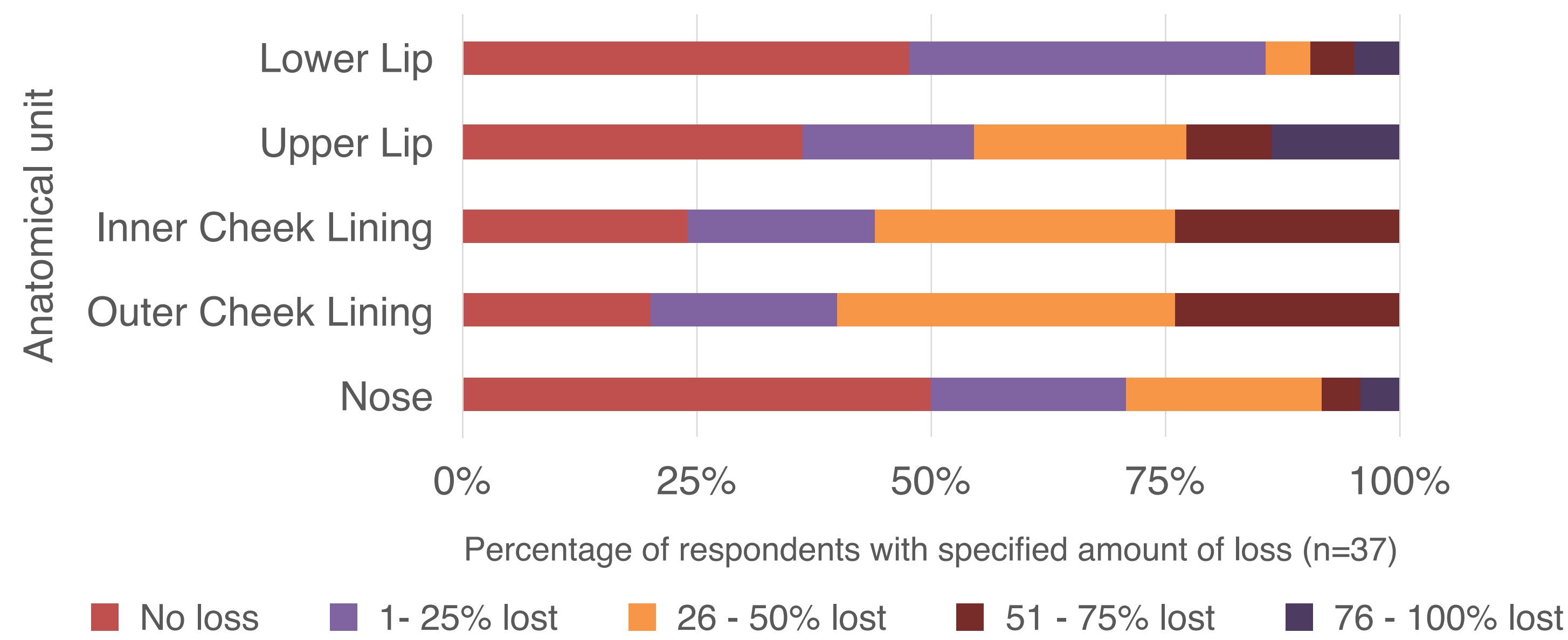
- Each noma case is unique
- Reconstruction often entails rebuilding the lips, cheeks, eyelids and nose
- Reported surgical techniques used: pedicled supraclavicular, abbe, estlander, fan, deltopectoral, radial forearm free forehead and local turnover flaps

“The opening of the mouth is very small making it difficult to eat or drink.” Patient, 29yr

## Results

- 37 patients included
- 18 months median follow up time (IQR 13, 25 months)
- 21 (56.8%) male
- 22 (62.9%) older than six years
- At admission, most severely affected anatomical area was the outer cheek (Figure 1)
- 15 (40.5%) had two or more surgeries
- Frequent surgical procedures: deltopectoral flap (n=16; 43.2%) and trismus-release (n=12; 32.4%)
- For the 8 trismus-release patients where mouth opening was documented at admission, half had an improvement in their mouth opening at follow-up (Table 1)
- All of the patients reported that the surgery had improved their quality of life (Table 2)

Figure 1: Fractional loss of anatomical unit at admission for study cohort (n=37)



## Conclusion

After surgery, patients experience improvements in their quality of life, but debilitating long term sequelae persist. Public health interventions for noma should focus on prevention (vaccination, oral hygiene, nutritional support), early detection, and rapid and accessible treatment of acute noma.

## Methods

Description and outcomes of 37 surgically-treated noma patients, managed at the MSF-supported Noma Children’s Hospital, Sokoto, northwest Nigeria.

**Purpose:** Inform ongoing care.

**Study Population:** Patients living in Sokoto or Kebbi states who had noma surgery more than 6 months prior to data collection.

**Data collected :**

**Stage 1:** Routinely collected data while in hospital (demographics, diagnosis and health seeking reasons).

**Stage 2:** Follow-up visits in patients home villages (anthropometry, mouth opening and quality of life measurements).

**Analysis:** A descriptive analysis was conducted using Stata 15.



Entrance to Noma Children’s Hospital. Photo: Claire Jeantet - Fabrice Caterini/INEDIZ

Table 1: Mouth opening categories on admission and follow-up (n=8)

| Patient   | Age | Admission                        | Follow-up                 |
|-----------|-----|----------------------------------|---------------------------|
| Patient 1 | 7   | T2: mouth opening 0-20 mm        | T2: mouth opening 0-20 mm |
| Patient 2 | 7   | T3: no mouth opening             | T2: mouth opening 0-20 mm |
| Patient 3 | 8   | T1: mouth opening 20-40 mm       | T2: mouth opening 0-20 mm |
| Patient 4 | 8   | T0: normal mouth opening: >40 mm | T2: mouth opening 0-20 mm |
| Patient 5 | 10  | T3: no mouth opening             | T2: mouth opening 0-20 mm |
| Patient 6 | 18  | T3: no mouth opening             | T2: mouth opening 0-20 mm |
| Patient 7 | 20  | T3: no mouth opening             | T2: mouth opening 0-20 mm |
| Patient 8 | 22  | T2: mouth opening 0-20 mm        | T2: mouth opening 0 20 mm |

Table 2: Self-reported quality of life assessment at long-term follow-up by age group (n=37)

| Quality of life indicator                                                      | ≤15 year olds*<br>n=20 | >15 year olds*<br>n=17 |
|--------------------------------------------------------------------------------|------------------------|------------------------|
| At this point in time, I can go to school                                      | 10 (50.0%)             | 13 (76.5%)             |
| At this point in time, I have friends                                          | 17 (85.0%)             | 17 (100.0%)            |
| I am now included in the community                                             | 15 (75.0%)             | 17 (100.0%)            |
| I can now get married                                                          | 5 (25.0%)              | 2 (11.8%)              |
| I can eat more easily than before the surgery                                  | 16 (80.0%)             | 16 (94.1%)             |
| I can drink more easily than before the surgery                                | 15 (75.0%)             | 16 (94.2%)             |
| People can now understand what I am saying more easily than before the surgery | 16 (80.0%)             | 16 (94.2%)             |
| I feel more happy with the way I look than before the surgery                  | 15 (75.0%)             | 17 (100.0%)            |

## Ethical statement

This study was approved by the MSF, Usmanu Danfodiyo University Teaching Hospital and Sokoto and Kebbi State Ethics Review Boards.

