# CASE STUDY No. 1: Solcor Burial SCL-3-t119

In this activity, you will work through a case study of a single individual who exhibits changes in their skeleton resulting from experience of disease or injury during life.

You will consider the features of the individual (age, sex, and pathology). Taking into account their mortuary and lifeways contexts, you will then assess whether they likely required, and received, health-related care at some stage. Remember that 'health-related care' is defined along a continuum spanning 'hands-on, intensive care' at one end, and 'accommodation of difference' (i.e. adapting environment and expectations to allow participation) at the other.

Note: As in most bioarchaeological research, you may not have all the data you would like in order to be completely confident in your conclusions. Hint: focus on the likely impacts of the skeletal changes (described below) on ability to function independently, and to fully participate, in the specific community setting at that particular time in history.

Read the case study and complete the *Short-Form Index of Care* to the best of your ability. Refer to the Glossary on the final page for brief definitions of unfamiliar terms.

## MORTUARY CONTEXT:

- An individual - SCL-3-t119 - was recovered from a Middle Period (400 – 1000 A.D.) cemetery in the Atacama Desert of Chile (Figure 1)
- Site is Solcor 3 - a cemetery for wealthy individuals who would have lived in a generally prosperous environment engaging in interregional trade networks.

## THE INDIVIDUAL:

- Approximately 100% of SCL-3-t119's skeleton was represented (Figure 2)
- SCL-3-t119 was estimated to be a female between the ages of 30 and 40 years at the time of death
- SCL-3-t199 was provided with normative burial practices of the period, including pottery but was not one of the wealthier burials in terms of mortuary goods
- SCL-3-t119 had changes in their skeleton that suggest this individual had some kind of disease or impairment previous to death (Figure 2 dark shaded area)

## PATHOLOGY

Skeletal alterations in SLC-3-t119 associated with disease are described below:

- Figures 3 – 5 show pathological changes in this individual's skull at the mandible, maxilla, zygomatic bones, and nasal bones
- No further changes were identified in the postcranial elements of this individual
- The changes to the nasal bones, including sharp, irregular margins at the nasal aperture (Figure 5), and mandible, including separation at the midline with a mix of lamellar and reactive bone (Figure 3), suggests possible traumatic injury to these bones
- New reactive bone formation at the mandible, maxilla, and zygomatic bones (Figures 3 – 5) and openings (Figure 5) in the nasal bones suggest a possible infection was impacting this individual at the time of death

**YOUR TASK:**

On the basis of the information above, fill out the *Short-Form Index of Care*. Keep in mind that more than one condition might be operating to affect SCL-3-t119's experience, and that individual health conditions may interact to affect overall experience. In summary, here are the questions you will be addressing:

- Based on the skeletal evidence for pathology presented above, what kind of clinical and functional impacts do you think SCL-3-t119 likely experienced?
- Given the lifeways context, could SCL-3-t119 have looked after herself, or was care from others in her community likely needed to help her to manage these impacts?
- If SCL-3-t119 needed care from others, what kind(s) of care do you think might have been required, and who might have provided this care? (Note: people can receive different types of care either at the *same* time (to address different impacts) or at *different* times (as their condition improves or worsens).

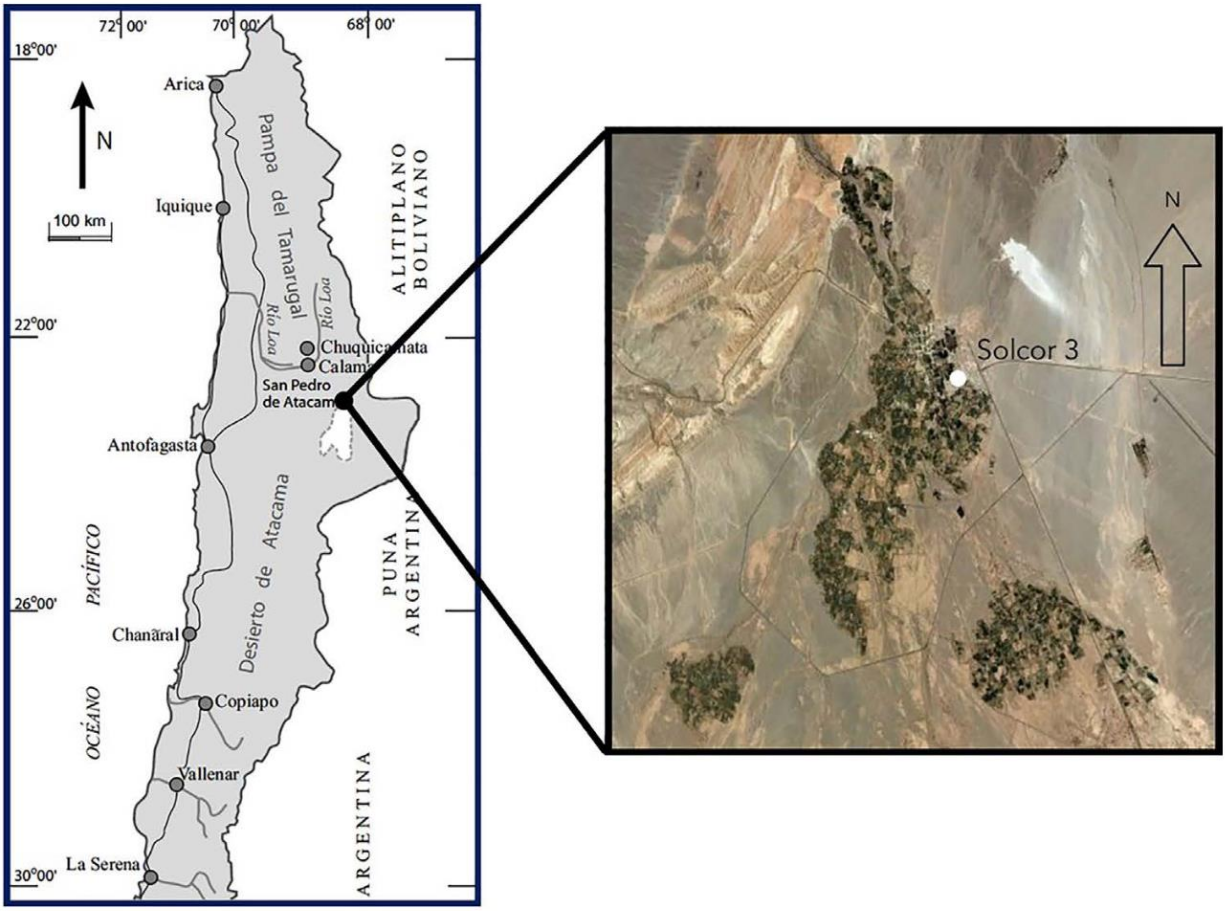



**Figure 1.** Map of northern Chile indicating the location of Solcor 3.

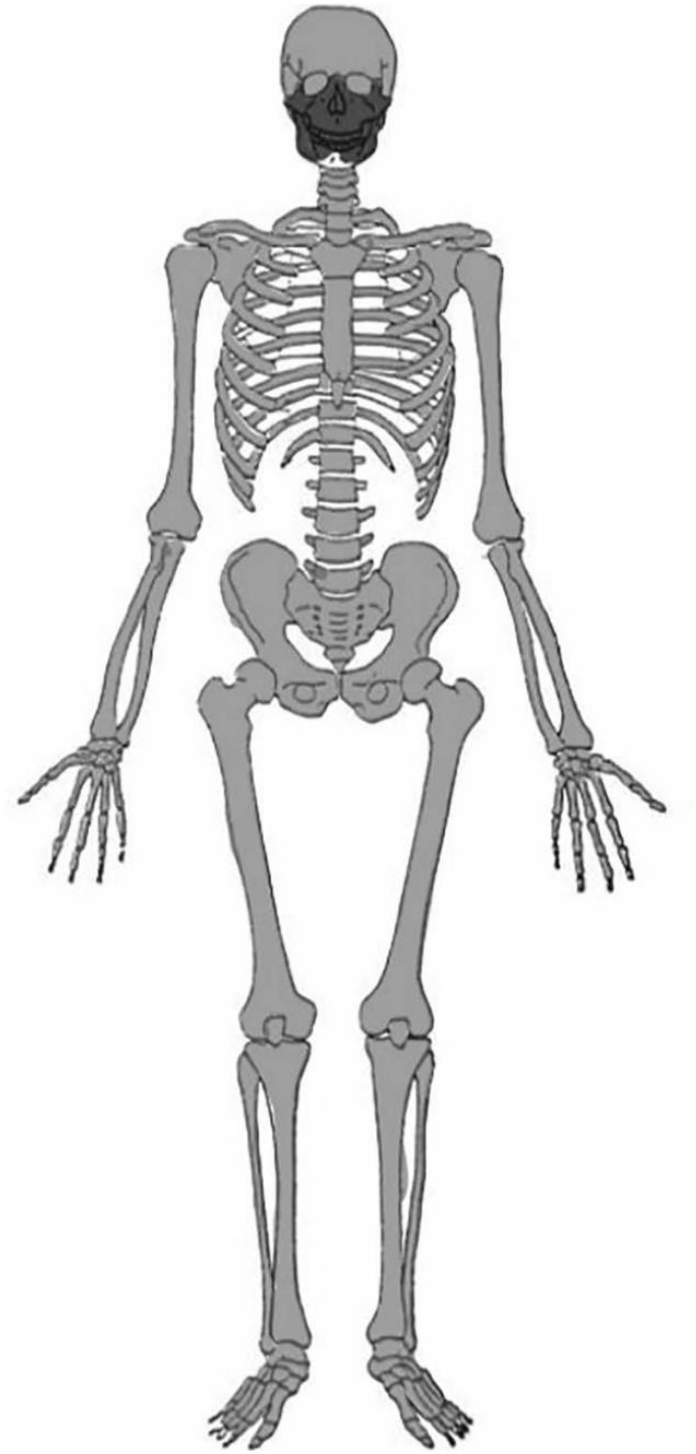


**Figure 2.** Completeness of individual Solcor-3-t119 from Solcor 3 and presence of pathological alterations. Key: light gray, presence of element; dark gray, presence of pathological alteration.

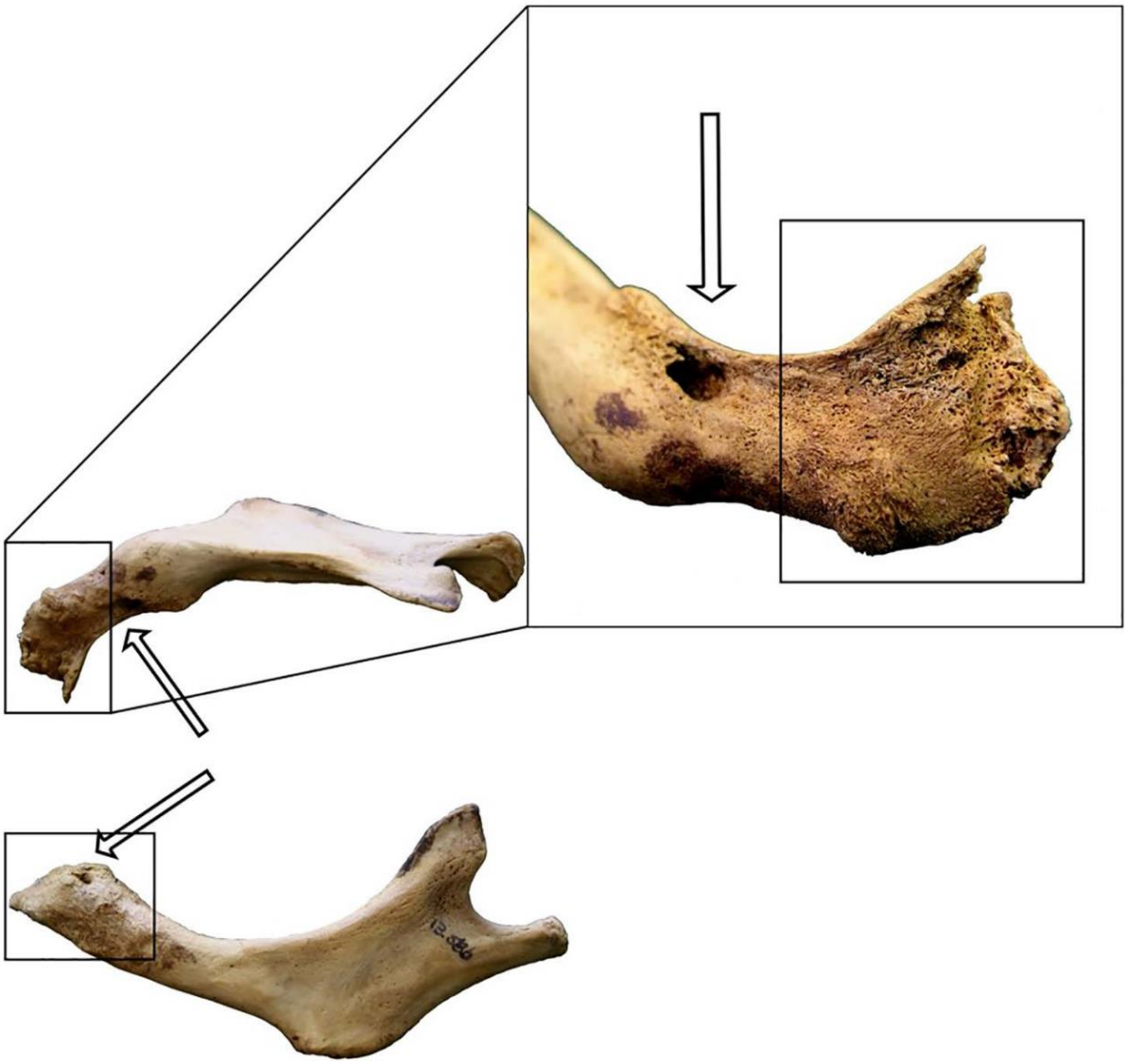


**Figure 3.** Superior view of right (above and labial) and lateral view of left (below) halves of mandible with separation at midpoint of bone. One alveolar socket was present on the right side and mental foramen on the left side (arrows). Boxes highlight bone resorption and presence of lamellar and reactive bone where separation occurred. Reactive bone at the medial aspect of right mandible (box, labial view).

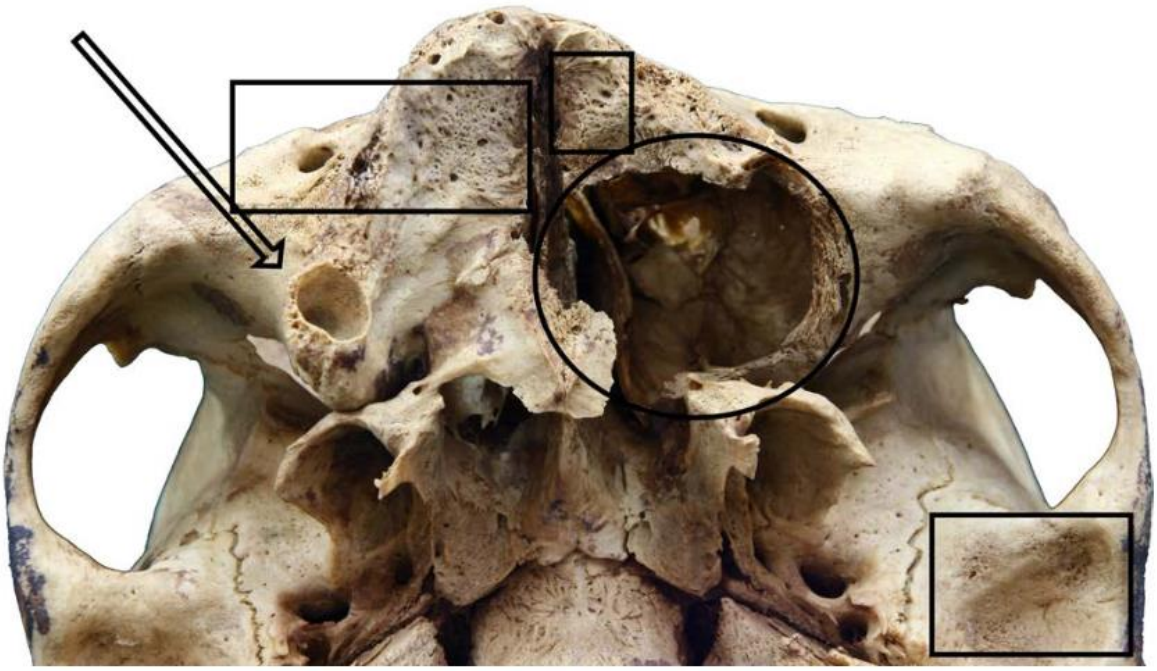


**Figure 4.** Inferior view of maxilla from Solcor-3-t119 with right third molar socket retained (arrow). Microporosity covers the maxilla and left temporomandibular joint (boxes); however, postmortem damage obscures the extent of lesions on the maxilla (circle).

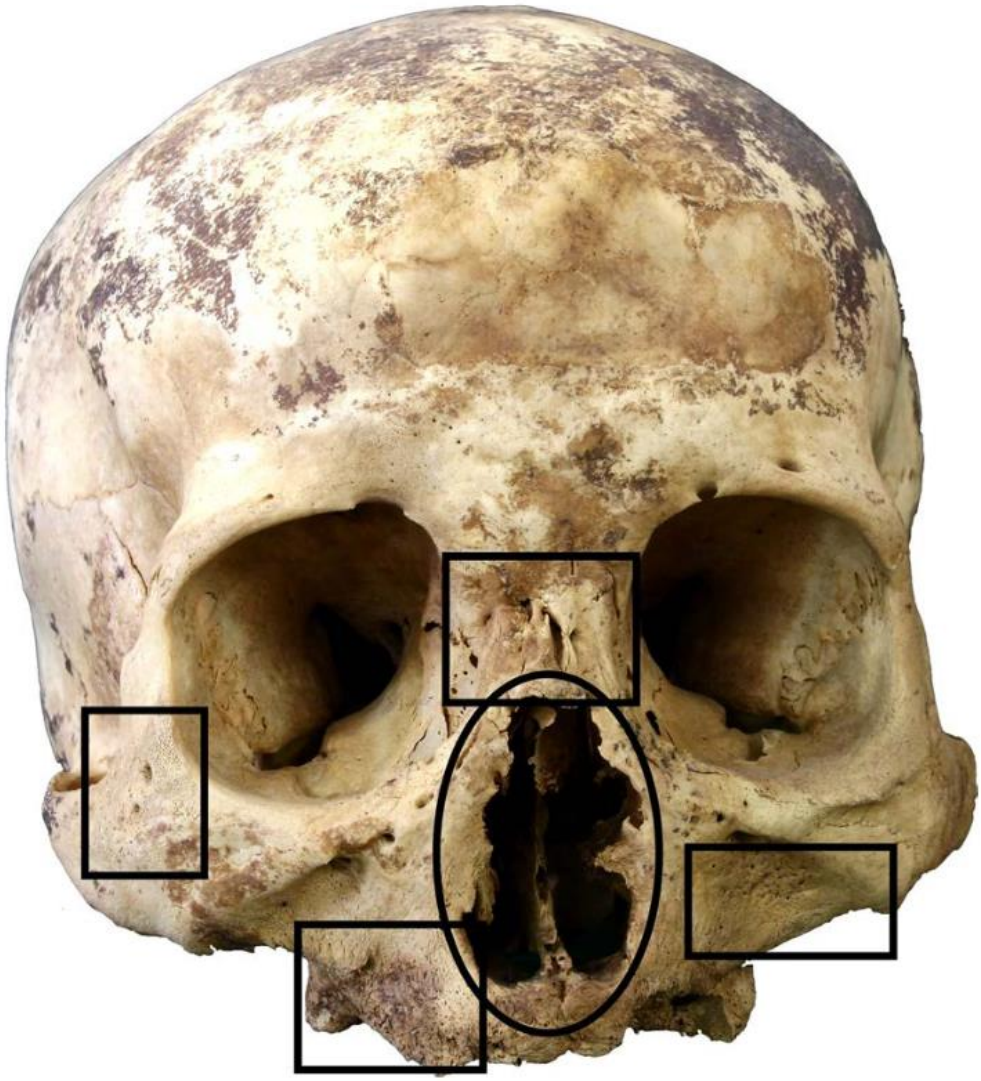


**Figure 5.** Anterior view of cranium of Solcor-3-t119 where the nasal suture has been obliterated and lamellar bone has left openings, possible cloacae (box). Reactive bone is present on the zygomatic bones and maxilla (boxes), while the nasal aperture has sharp, irregular, and smooth margins (circle).

**GLOSSARY: Case Study No. 1 - SLC-3-t119***

*** For more detailed definitions refer to your text books or a dictionary**

**Acute** – short term exposure to, or experience of, disease or injury

**Chronic** – long term exposure to, or experience of, disease or injury; generally when there is evidence of reactive and/or lamellar bone that suggests healing a process

**Clinical Impacts** – refers to physiological responses to disease or injury which warrant treatment /care (ex: fever, pain, inflammation)

**Comorbidity** – presence of more than one disease or injury at the same time

**Duration** – in this context refers to the length of time someone lived with disease or injury, or how long disease or injury may have kept them from engaging in their day-to-day activities

**Functional Impacts** – refers to challenges in undertaking activities of daily living that result from clinical impact(s) of disease or injury, and which may warrant a level of support and/or dedicated care treatment (ex: changes to mobility, difficulties in eating, inability to work)

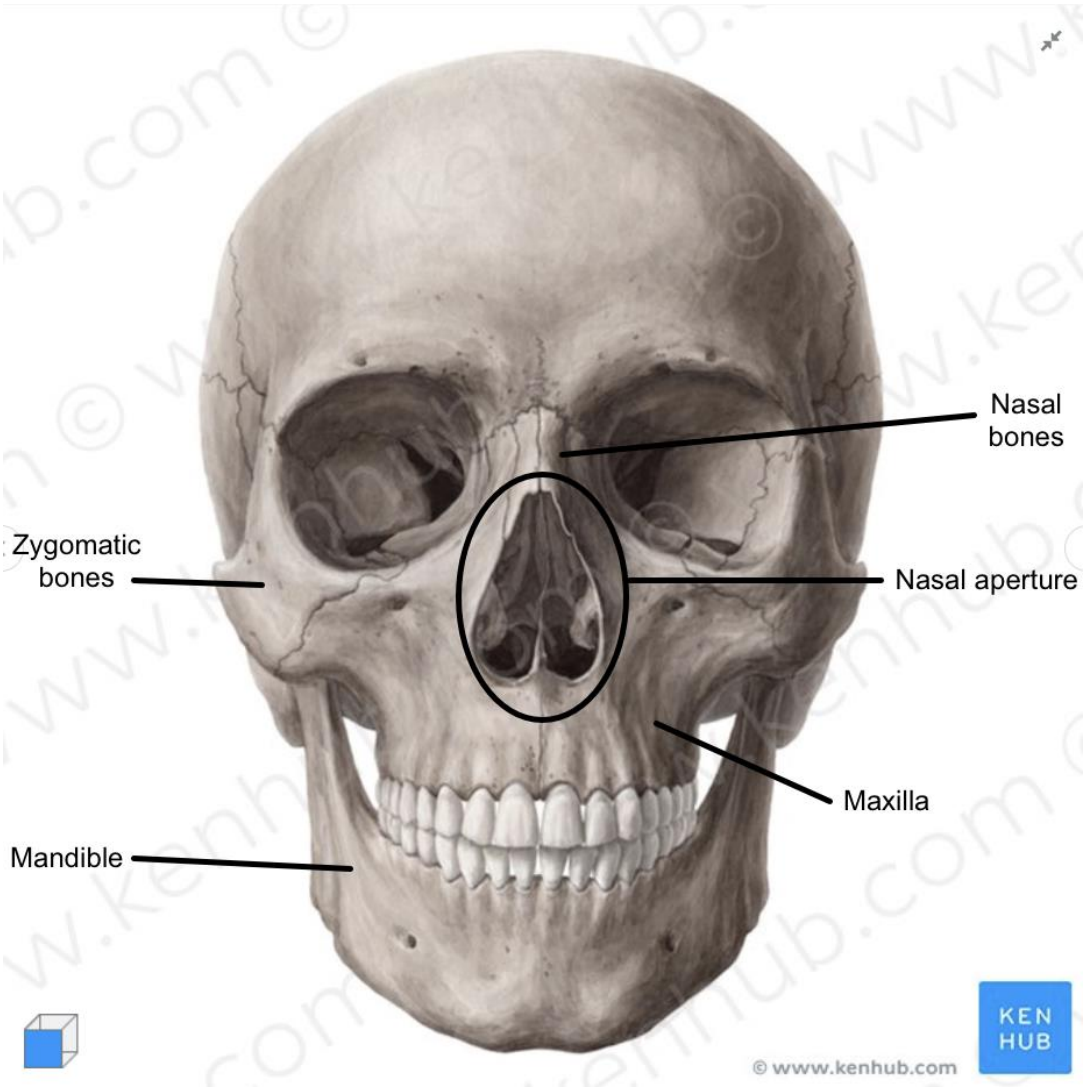
**Infectious Disease** – illness that results from a pathogen (e.g., bacteria, virus, or fungi) that leads to changes in the skeleton – in this context changes related to infectious disease will generally be the presence of new bone (reactive or lamellar) or the loss of bone (destruction)

**Lamellar Bone** – this is mature bone that is the product of remodeled reactive bone and has a regular arrangement

**Pathological change** – change in the normal shape, physiology, or orientation of an element that in this context relates to disease or an impairment (e.g., trauma)

**Reactive Bone** – this is immature bone that is produced at initial stages of bone formation and has an irregular arrangement; also referred to as woven bone

**Trauma** – physical injury in bioarchaeological contexts this could be directly impacting bone (e.g., accidental fall that breaks bone) or indirectly impacting bone (e.g., strained muscle impacts attachment site on bone)


Nasal bones
Zygomatic bones
Nasal aperture
Maxilla
Mandible
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