STUDENT READING PACK | DISEASE DOMAIN | NINTH-GRADE TARGET

The Disease Domain Explainer

Short readings that supply every idea needed for each lesson decision.

REQUIRED	OPTIONAL
Read the three short paragraphs and use the labeled case evidence.	**Open the publication links only if you want to go deeper.**

How every reading is structured

- Why it matters
- The question
- Prior takeaway
- Analogy and rules
- Biomedical example
- Case evidence
- Decision
- Take-home
- Glossary
- Optional sources

READING 1 OF 20 | DEVELOPMENT CAN GO WRONG

Day One: Recognizing and Communicating a Cleft at Birth

What happens the day Mateo is born: how do we examine the finding, and how do we tell his family?

START WITH

Start with what you can observe before you explain why it happened.

REMEMBER

Day-one cleft care begins with a complete exam and clear, respectful communication.

Why this matters

The first conversation can shape how a family understands the condition and trusts the care team.

The biology in plain English

A cleft is a gap that is present at birth because parts of the face did not fully join during development.

The exam includes looking at the lip and palate and gently feeling the roof of the mouth. Some palate gaps are easier to feel than to see.

The clinician records what is present, what is absent, and what the family was told. Cause comes later, after more evidence.

Biomedical teaching illustration: Map the inspection onto Mateo's newborn exam

Check your understanding

- Why are both inspection and palpation needed?
- What can the team say now, and what must remain unknown?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D01-E1	The upper lip has a visible gap on the left side.	The lip finding is left-sided and unilateral.
D01-E2	The palate gap is seen with a light and confirmed by palpation.	The palate finding is real and should not be missed by inspection alone.
D01-E3	Breathing, tone, heart sounds, eyes, ears, hands, feet, and jaw size are otherwise unremarkable.	The chart must include important normal findings while the team keeps the cause open.

Concrete decision

You are the pediatrician in the delivery room. Mateo is breathing well. His parents ask what you found and what happens next.

A. Name the observed cleft, explain that a team and plan are available, and document the complete exam.

B. Name a genetic cause before the full examination is finished.

C. Use an obsolete label and focus only on appearance.

Decision prompt: Which response will you give, and which two evidence IDs make it the safest choice?

Claim ceiling: You may describe the structural finding. You may not claim a genetic cause or final isolated-versus-syndromic classification yet.

Glossary

Term	Plain-English definition
cleft	A split or gap left when two parts of the face grow toward each other but do not fully join before birth.
congenital	Present at birth, describing a condition that forms during development in the womb rather than appearing later in life.
newborn exam	A head-to-toe check a doctor does on a baby soon after birth to spot problems, including looking and feeling inside the mouth for a cleft.
palpation	Examining the body by feeling it with the hands to check the size, firmness, or shape of structures under the surface.
multidisciplinary team	A lesson term defined by the surrounding model and case evidence.

READING 2 OF 20 | DEVELOPMENT CAN GO WRONG

Describing the Cleft: Type, Side, and How Complete

How does the team describe Mateo's cleft precisely enough to plan from?

START WITH

Day-one cleft care begins with a complete exam and clear, respectful communication.

REMEMBER

A useful cleft description names the structures, the side, and the completeness as three separate choices.

Why this matters

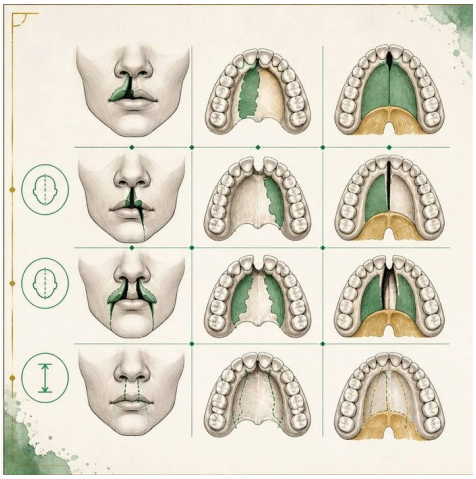
Precise words let clinicians compare patients and plan care without guessing.

The biology in plain English

Clefts are described on three separate axes: what structures are open, which side is involved, and how far the gap extends.

A unilateral cleft affects one side. A bilateral cleft affects both sides. A complete cleft reaches the nasal floor or runs the full length of the palate.

Mateo's evidence fits all three parts of the phrase complete unilateral left cleft lip and palate.



Biomedical teaching illustration: Sort Mateo on three clinical axes

Check your understanding

- Which evidence supports each part of Mateo's description?
- Why is the phrase 'a cleft' not enough for planning?

READING 2 OF 20 | EVIDENCE, DECISION, AND GLOSSARY

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D02-E1	The gap involves both the lip and the palate.	Structure category: cleft lip and palate.
D02-E2	Only the left side of the lip is involved.	Laterality: unilateral, left.
D02-E3	The lip gap reaches the nostril and the palate is open along its length.	Completeness: complete.

Concrete decision

You are entering Mateo into the cleft team registry. The surgeon will use your entry to plan the first visit. The registry rejects vague labels.

A. Complete unilateral left cleft lip and palate

B. A cleft

C. Bilateral incomplete cleft lip only

Decision prompt: Choose the registry description and cite one evidence ID for each word that narrows the description.

Claim ceiling: You may classify anatomy. You may not infer a syndrome from the cleft pattern alone.

Glossary

Term	Plain-English definition
cleft lip (CL)	A birth difference where the upper lip does not fully fuse before birth, leaving a gap or split that can reach toward the nose.
cleft palate (CP)	A birth difference in which the roof of the mouth does not fully join before birth, leaving an opening between the mouth and nasal cavity.
cleft lip and palate (CLP)	A birth difference in which the lip, the roof of the mouth, or both fail to fully join before birth, leaving a gap.
unilateral	Affecting only one side of the body or face, as opposed to both sides.
bilateral	Affecting both the left and right sides of the body, such as a cleft that appears on both sides of the lip.
complete	Describing a cleft that extends through the entire structure, such as a lip cleft reaching all the way up into the nostril.
incomplete	Describing a cleft that does not extend through the full structure, so a bridge of tissue still connects the two sides.
submucous cleft palate	A hidden cleft where the palate muscles fail to join in the midline even though the overlying lining looks intact.

READING 3 OF 20 | DEVELOPMENT CAN GO WRONG

Is the Cleft a Clue? The Syndromic Question

Could Mateo's cleft be a sign of a larger condition, or is it traveling alone?

START WITH

A useful cleft description names the structures, the side, and the completeness as three separate choices.

REMEMBER

A cleft is syndromic only when a pattern of additional findings supports that claim.

Why this matters

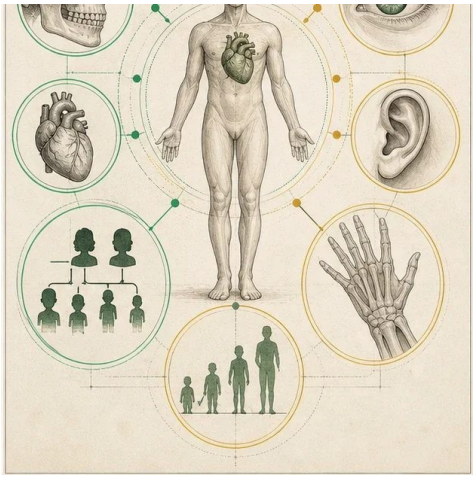
The difference between isolated and syndromic changes testing, counseling, and follow-up.

The biology in plain English

An isolated cleft appears without a larger pattern of health findings. A syndromic cleft is one feature in a repeatable condition that affects more than one part of the body.

Clinicians look for associated findings in the jaw, heart, eyes, ears, limbs, growth, development, and family history.

Mateo has no extra findings on the first exam, but the team still needs a structured check before closing the question.



Biomedical teaching illustration: Ask whether the cleft travels alone

Check your understanding

- What turns one finding into a syndrome pattern?
- Why is 'so far' an important phrase in today's chart?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D03-E1	Mateo has a complete unilateral left cleft lip and palate.	This confirms the structural finding but does not classify the cause.
D03-E2	No jaw, heart, limb, eye, ear, or tone abnormality was found on the newborn exam.	The first exam does not show a broader pattern.
D03-E3	Family history and targeted syndrome checks are not yet complete.	The classification must remain provisional.

Concrete decision

You are presenting Mateo at the first genetics huddle. The team must choose how to describe the case today without overstating what is known.

A. Cleft under evaluation, with no additional anomalies found so far

B. Confirmed nonsyndromic cleft

C. Confirmed named syndrome

Decision prompt: Choose the most defensible chart phrase and explain why the other two go beyond the evidence.

Claim ceiling: You may state that no red flags have been found so far. You may not call the cleft isolated or nonsyndromic until the evaluation is complete.

Glossary

Term	Plain-English definition
isolated cleft	A cleft of the lip or palate that occurs on its own, without other birth differences or a recognized syndrome.
syndrome	A set of features that consistently occur together and share a common underlying cause.
syndromic cleft	A cleft that comes packaged with other features as part of a named syndrome, accounting for roughly 30 percent of clefts.
nonsyndromic cleft	A cleft that occurs on its own, without other birth differences or a recognized syndrome accompanying it.
associated anomaly	An additional birth difference found alongside the main condition, signaling that a broader syndrome or developmental problem may be present.
dysmorphology	The medical study of unusual body and facial features present from birth, used to recognize and diagnose genetic syndromes.

READING 4 OF 20 | DEVELOPMENT CAN GO WRONG

The Short List: Ruling Out the Big Cleft Syndromes

Which specific syndromes must we rule out for Mateo, and what is the one red flag that flags each?

START WITH

A cleft is syndromic only when a pattern of additional findings supports that claim.

REMEMBER

A red-flag checklist turns a broad syndrome question into specific findings that can be checked.

Why this matters

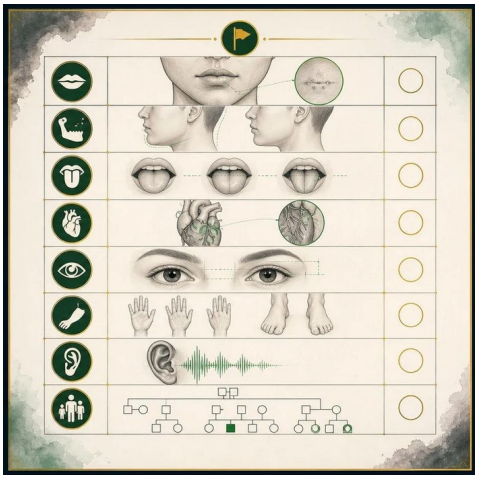
Specific checks make a clinical impression reproducible from one clinician to the next.

The biology in plain English

Different syndromes have different clue patterns. Examples include lip pits, a very small jaw, heart findings, eye findings, or a characteristic family history.

A checklist forces the team to look for each clue instead of trusting a quick impression.

Mateo's screen is reassuring, but the next step is to complete the family history and genetics examination.



Biomedical teaching illustration: Match named syndromes to named red flags

Check your understanding

- What is one red flag and the condition it may suggest?
- Why does a normal screen narrow rather than end the evaluation?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D04-E1	No lower-lip pits are seen.	A classic Van der Woude clue is absent.
D04-E2	Jaw size and breathing are normal.	The small-jaw and tongue-back pattern of Robin sequence is not present.
D04-E3	Heart exam, eye exam, and limb exam are unremarkable.	Several common syndromic red flags are not present on screening.

Concrete decision

You are the cleft team coordinator reviewing the red-flag matrix. The team has time for one next step before the family leaves.

A. Complete the structured family history and genetics examination

B. Assign a named syndrome from the cleft alone

C. Stop all evaluation because the first exam is normal

Decision prompt: Choose the next step and show how the red-flag evidence narrows, but does not close, the question.

Claim ceiling: You may say named red flags are absent on today's screen. You may not say every possible syndrome has been ruled out.

Glossary

Term	Plain-English definition
Van der Woude syndrome	The most common syndromic, single-gene form of cleft lip and palate, usually caused by an IRF6 mutation and often marked by small lower-lip pits.
22q11.2 deletion syndrome	A condition caused by missing a small piece of chromosome 22, leading to heart defects, immune problems, and often cleft palate.
Stickler syndrome	An inherited collagen disorder that often pairs cleft palate with severe nearsightedness, joint problems, and hearing loss.
Pierre Robin sequence	A chain of features starting with a small lower jaw, which pushes the tongue back and blocks the airway and often comes with a cleft palate.
lip pits	Small paired depressions on the lower lip that serve as the hallmark sign flagging Van der Woude syndrome, a cleft-related disorder.
micrognathia	An unusually small lower jaw that can crowd the tongue backward and is sometimes linked with cleft palate and breathing trouble.
glossoptosis	Backward and downward displacement of the tongue, which can block the airway and is a key feature of Pierre Robin sequence.
velopharyngeal insufficiency	When the soft palate cannot fully seal off the nose during speech, letting air escape and making speech sound nasal.

The Exam and the Test That Sort Syndromic from Isolated

What exam and what test sort a syndromic cleft from an isolated one, and when do you order the test?

START WITH

A red-flag checklist turns a broad syndrome question into specific findings that can be checked.

REMEMBER

Testing is most useful when the history and exam create a question the test can answer.

Why this matters

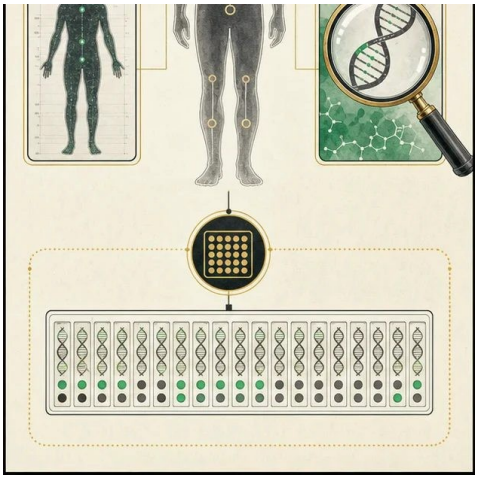
Unfocused testing can create cost and confusing results without answering the family's real question.

The biology in plain English

A genetics exam looks for a pattern in the whole body and across the family. That pattern helps decide whether a test is likely to help.

A chromosomal microarray looks for missing or extra pieces of DNA. It cannot detect every kind of DNA change.

When a cleft appears isolated, the team can document the evaluation and revisit testing if new findings appear.



Biomedical teaching illustration: Let the exam choose the genetic test

Check your understanding

- What question can a microarray answer?
- Why can a normal result never mean 'no genetic influence'?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D05-E1	Mateo's structured exam shows the cleft but no additional congenital anomalies.	The current pattern is more consistent with an isolated finding than a multiple-anomaly pattern.
D05-E2	The three-generation family history shows no repeated cleft pattern or matching syndrome features.	There is no clear single-syndrome target from family history.
D05-E3	Chromosomal microarray is best at detecting missing or extra DNA segments, not every possible DNA change.	A broad test has a defined scope and a normal result has limits.

Concrete decision

You are the clinical geneticist deciding what to recommend today. Mateo has one major structural finding and no additional anomalies after a careful exam.

A. Document the completed genetics evaluation and reserve testing for new findings or a specific question

B. Order every available genetic test

C. Tell the family genetics has no role

Decision prompt: Choose a testing plan, cite the case evidence, and state one thing your plan cannot rule out.

Claim ceiling: You may justify a measured testing plan. You may not say a normal microarray proves there is no genetic contribution.

Glossary

Term	Plain-English definition
dysmorphology exam	A careful physical exam where a specialist looks for unusual body and facial features that, together, can point to a genetic syndrome.
chromosomal microarray (CMA)	A genetic test that scans the whole genome for missing or extra chunks of DNA too small to see under a microscope.
copy-number variant	A change in which a large stretch of DNA is duplicated or deleted, so a person carries extra or missing copies of a region.
diagnostic yield	The fraction of patients in whom a given test actually finds the genetic or medical cause of their condition.
isolated cleft	A cleft of the lip or palate that occurs on its own, without other birth differences or a recognized syndrome.
syndromic cleft	A cleft that comes packaged with other features as part of a named syndrome, accounting for roughly 30 percent of clefts.

READING 6 OF 20 | DEVELOPMENT CAN GO WRONG

Keeping Mateo Fed and Growing

Why can't Mateo feed like a baby without a cleft, and what can we change today so he grows?

START WITH

Testing is most useful when the history and exam create a question the test can answer.

REMEMBER

An open palate limits suction, so feeding support replaces suction with flow control and positioning.

Why this matters

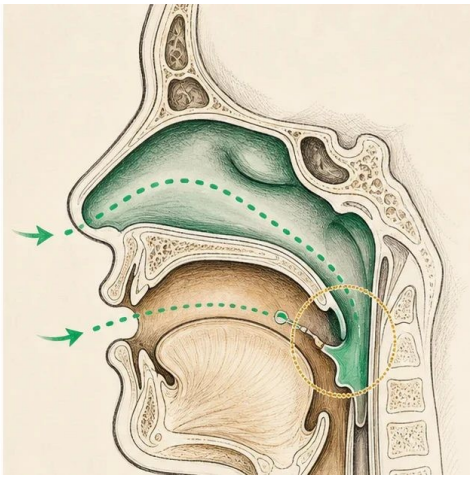
Newborn growth depends on getting enough nutrition without exhausting the baby or disrupting breathing.

The biology in plain English

A baby normally seals the mouth to create suction. An open palate lets air enter, so the seal is incomplete.

A soft assisted-delivery bottle lets the caregiver add gentle flow while the baby controls swallowing and breathing.

Upright positioning, pauses, and weight checks help the team know whether the plan is safe and effective.



Biomedical teaching illustration: Replace missing suction with controlled assistance

Check your understanding

- What pressure problem does an open palate create?
- How does each part of the feeding plan solve that problem?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D06-E1	Mateo tires during feeding and cannot maintain suction on a standard bottle.	The open palate is interfering with pressure generation.
D06-E2	Breathing is calm and oxygen level remains normal during the observed feed.	The immediate problem is feeding mechanics rather than respiratory failure.
D06-E3	With an assisted-delivery bottle, upright position, and pauses, intake improves.	The modified plan addresses the mechanism.

Concrete decision

You are the feeding specialist before discharge. Mateo must show a safe plan that his family can repeat at home.

A. Use an assisted-delivery bottle, upright position, paced squeezes, and weight follow-up

B. Use a standard bottle and feed faster

C. Stop oral feeding without first assessing safety

Decision prompt: Choose the discharge plan and connect each part to the evidence and pressure model.

Claim ceiling: You may recommend the observed safe strategy. You may not assume every infant with a cleft has the same feeding ability.

Glossary

Term	Plain-English definition
intraoral negative pressure	The suction created inside the mouth that lets a baby latch and draw milk; a cleft palate can prevent this seal from forming.
suck	An infant's ability to create suction with the lips and palate to draw milk, which a cleft can disrupt.
failure to thrive	Poor weight gain and growth in an infant or child, often because feeding is difficult or nutrition is not absorbed well.
compressible (assisted-delivery) bottle	A soft squeezable feeding bottle that lets a caregiver push milk into the mouth of a baby who cannot create strong suction, such as one with a cleft.
upright positioning	Holding a baby in a more vertical posture during feeding so gravity helps keep milk out of the nose and airway.

READING 7 OF 20 | DEVELOPMENT CAN GO WRONG

When a Cleft Is an Airway Emergency

What makes a cleft palate a breathing emergency in one baby and not another?

START WITH

An open palate limits suction, so feeding support replaces suction with flow control and positioning.

REMEMBER

In Robin sequence, the small jaw lets the tongue fall back and block the airway; the palate gap itself is not the blockage.

Why this matters

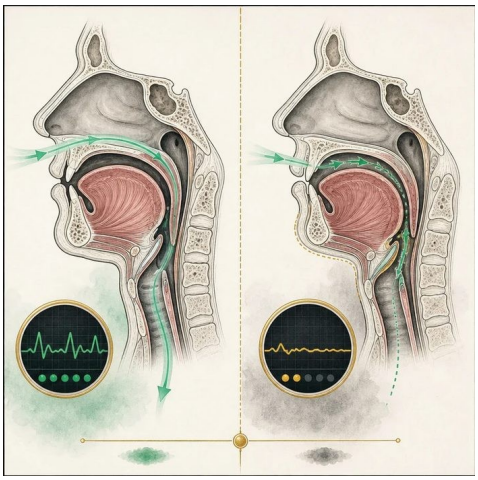
Recognizing the mechanism separates a feeding challenge from an airway emergency.

The biology in plain English

Robin sequence begins with a small lower jaw. The tongue then sits farther back and can narrow the throat.

The cleft palate often occurs in the same sequence, but the palate opening is not what blocks airflow.

Noisy breathing, pulling in at the ribs, poor color, or oxygen drops require immediate assessment.



Biomedical teaching illustration: Trace the Robin sequence mechanism

Check your understanding

- Put the Robin sequence events in order.
- Which findings make the comparison infant urgent?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D07-E1	Mateo has normal jaw size and no tongue-back position on examination.	The key Robin sequence mechanism is absent.
D07-E2	Breathing is quiet, oxygen level is normal, and there are no retractions.	There is no current sign of airway distress.
D07-E3	A comparison infant has micrognathia, glossoptosis, noisy breathing, and oxygen drops when lying flat.	This pattern requires urgent airway action.

Concrete decision

You are triaging two newborns with cleft palate. Only one bassinet needs immediate airway escalation.

A. Escalate the comparison infant with small jaw, tongue-back position, and oxygen drops

B. Escalate Mateo because every palate cleft blocks the airway

C. Wait for feeding failure before checking breathing

Decision prompt: Choose the infant who needs escalation and trace the mechanism in order.

Claim ceiling: You may rule on the current airway signs. You may not claim that Mateo can never develop a breathing problem later.

Glossary

Term	Plain-English definition
micrognathia	An unusually small lower jaw that can crowd the tongue backward and is sometimes linked with cleft palate and breathing trouble.
glossoptosis	Backward and downward displacement of the tongue, which can block the airway and is a key feature of Pierre Robin sequence.
sequence	A pattern of birth defects in which one early problem sets off the others, as small jaw leads to tongue and palate problems in Pierre Robin.
Pierre Robin sequence	A chain of features starting with a small lower jaw, which pushes the tongue back and blocks the airway and often comes with a cleft palate.
U-shaped cleft palate	A wide, rounded cleft of the palate shaped like the letter U, characteristic of Pierre Robin sequence.
airway obstruction	A partial or complete blockage of the passages that carry air to the lungs, making breathing difficult.

How Common Is Mateo's Cleft, and in Whom?

How common is a cleft like Mateo's, and which babies does it happen to most?

START WITH

In Robin sequence, the small jaw lets the tongue fall back and block the airway; the palate gap itself is not the blockage.

REMEMBER

Epidemiology describes patterns in groups; it does not identify the cause of one child's cleft.

Why this matters

Good epidemiology helps plan services while protecting families from false causal claims.

The biology in plain English

Birth prevalence is the number of babies born with a condition divided by the total number of births in the same population and time period.

Cleft patterns differ by type, sex, side, and population. Those are group-level observations.

Mateo fits a common structural pattern, but common does not mean simple, and a population rate does not reveal his personal cause.

Biomedical teaching illustration: Read population patterns without overclaiming

Check your understanding

- What denominator belongs in a birth-prevalence statement?
- Why can epidemiology not assign individual blame?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D08-E1	Cleft lip with or without cleft palate occurs in roughly 1 in 1,000 births in current U.S. CDC estimates.	The condition is uncommon but not rare in population terms.
D08-E2	Unilateral clefts are more common than bilateral clefts, and left-sided unilateral clefts are more common than right-sided ones.	Mateo fits common laterality patterns.
D08-E3	Mateo is one patient with a specific history.	Population rates cannot identify his individual cause.

Concrete decision

You are writing one sentence for Mateo's family and one for a public-health report. Both sentences must use the same data without confusing group patterns with personal cause.

A. Describe the group pattern and state that it does not identify Mateo's cause

B. Use the population pattern to assign blame

C. Avoid all population data because it is never useful

Decision prompt: Write the two sentences and label which one is population-level and which one is patient-level.

Claim ceiling: You may describe prevalence and pattern. You may not use group data to claim why Mateo's cleft happened.

Glossary

Term	Plain-English definition
epidemiology	The study of how diseases spread, who they affect, and what causes them across populations, used to find patterns and guide prevention.
birth prevalence	How often a condition is present at birth, usually given as the number of affected babies per a fixed number of births.
incidence	The number of new cases of a disease that appear in a population during a set period of time.
sex ratio	The proportion of affected males to females in a condition, a clue that can hint at sex-linked or hormone-related causes.
laterality	Which side of the body a feature affects, such as whether a cleft is on the left, the right, or both sides.
ancestry	A person's population background inherited from earlier generations, which can affect how common certain DNA variants are.

READING 9 OF 20 | CELLS DIFFERENTIATE

What Caused Mateo's Cleft?

What caused Mateo's cleft: his genes, something in the pregnancy, or both?

START WITH

Epidemiology describes patterns in groups; it does not identify the cause of one child's cleft.

REMEMBER

Most isolated clefts reflect many small genetic and environmental influences crossing a developmental threshold.

Why this matters

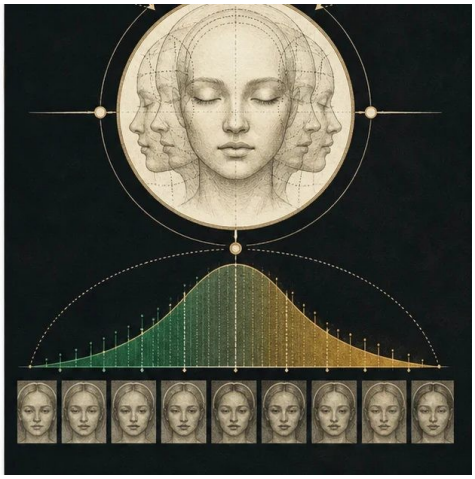
Families deserve an explanation that is scientifically honest and does not turn risk into blame.

The biology in plain English

Multifactorial means that many small influences work together. Some come from DNA and some come from the environment around development.

Each influence changes probability. It does not guarantee that a cleft will or will not form.

In Mateo's case, the evidence supports a many-factor model, not a single proven cause.



Biomedical teaching illustration: Use the threshold model for an isolated cleft

Check your understanding

- Why can two families reach the same outcome through different combinations?
- What is the difference between a risk factor and a cause?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D09-E1	Mateo has no clear syndrome pattern or single-gene family pattern.	A simple one-gene explanation is not supported by the case.
D09-E2	Research finds many genetic regions associated with common nonsyndromic clefts.	Multiple small genetic influences can contribute.
D09-E3	Smoking and some other pregnancy exposures are associated with higher risk, but no exposure in Mateo's case proves causation.	Environmental factors change risk without assigning blame for an individual case.

Concrete decision

You are answering Mateo's parents when they ask, 'What did we do to cause this?' Your answer must be accurate, clear, and free of blame.

A. Explain multifactorial risk and that no single cause can be identified in this case

B. Name one exposure as the cause

C. Say genes always determine the outcome

Decision prompt: Choose the explanation and use all three evidence IDs to set the limits of the claim.

Claim ceiling: You may explain multifactorial risk. You may not claim a specific exposure or variant caused Mateo's cleft.

Glossary

Term	Plain-English definition
multifactorial	Caused by several genes acting together with environmental factors, not by a single gene alone.
twin concordance	How often both members of a twin pair share a trait, used to compare identical and fraternal twins and gauge genetic influence.
teratogen	An agent such as a drug, chemical, or infection that can disrupt development and cause birth differences if exposure happens during pregnancy.
risk factor	Anything that raises a person's chance of developing a disease, such as smoking, family history, or high blood pressure, without guaranteeing it.
odds ratio	A number comparing the odds of having a factor in affected versus unaffected people; above 1 suggests the factor is associated.
threshold model	The idea that a trait appears only when a person's combined liability from genes and environment crosses a set line.

READING 10 OF 20 | DEVELOPMENT SCULPTS

The Plan for the Next 18 Years

What is the staged plan of care for a child like Mateo, from birth through the teen years, and why is each step timed when it is?

START WITH

Most isolated clefts reflect many small genetic and environmental influences crossing a developmental threshold.

REMEMBER

Cleft care follows developmental windows, so the right action depends on what the child needs next.

Why this matters

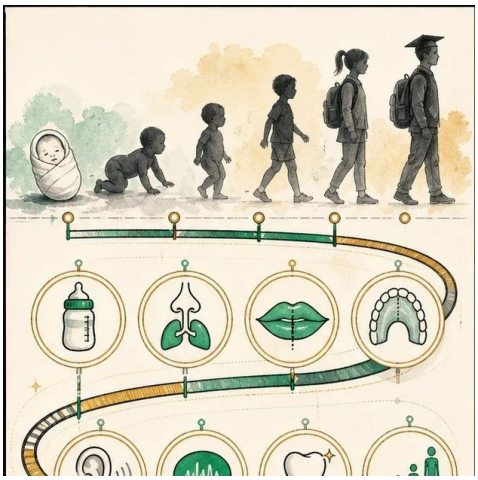
Families need to see both the next step and the long view without being overwhelmed.

The biology in plain English

Cleft care is staged because different needs appear as a child grows. Feeding comes before speech, and early repairs come before later dental and jaw decisions.

Some windows matter because a body system or skill is developing quickly, such as speech in infancy and early childhood.

A coordinator and a shared record keep the plan connected across specialists and years.



Biomedical teaching illustration: Build Mateo's care around developmental windows

Check your understanding

- Why is the plan organized by developmental windows?
- Which parts of the timeline need repeated checks rather than one visit?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D10-E1	Mateo needs feeding and growth follow-up now, before surgery.	Immediate needs come first in the sequence.
D10-E2	Lip and palate operations are staged at different times for different purposes.	One operation cannot solve every problem.
D10-E3	Hearing, speech, dental growth, psychosocial health, and facial growth require repeated checks over years.	The plan must extend beyond the first repair.

Concrete decision

You are Mateo's cleft team coordinator. The family wants a one-page plan that shows what happens now, in infancy, in childhood, and in adolescence.

A. Create a staged plan tied to developmental needs and review points

B. Promise one surgery will finish care

C. List specialists without timing or ownership

Decision prompt: Choose the plan structure and place each evidence item in the correct time band.

Claim ceiling: You may provide typical windows and ownership. You may not promise exact dates before individual evaluation.

Glossary

Term	Plain-English definition
multidisciplinary care	Care provided by a team of different specialists who coordinate their treatment plans for one patient.
staged care	A treatment plan delivered in planned steps across years, matching each procedure to the right point in a child's growth.
care timeline	The planned sequence of treatments and check-ups a patient receives over months and years, with each step scheduled at the right age.
milestone	A key checkpoint or expected achievement reached by a set point, used to track a child's development or a project's progress.
developmental window	A limited period during growth when a tissue or organ is forming and is most sensitive to genes, signals, or disruptions.

READING 11 OF 20 | DEVELOPMENT SCULPTS

What the Surgeries Are Actually For

What clinical problem does each cleft surgery solve, and why is each one scheduled when it is?

START WITH

Cleft care follows developmental windows, so the right action depends on what the child needs next.

REMEMBER

Lip repair restores form, while palate repair separates spaces and supports speech; different jobs require staged operations.

Why this matters

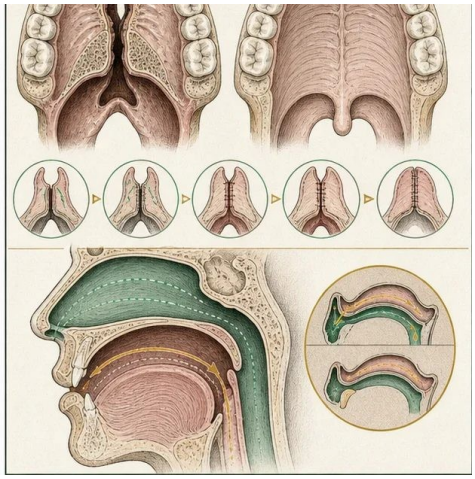
Families make better decisions when they understand what each surgery is meant to change.

The biology in plain English

Lip repair joins the lip tissues and helps reshape the nose. Its main early goal is form.

Palate repair closes the opening between the mouth and nose and rebuilds the muscles needed for speech. Its main early goals are separation and function.

The two operations happen in stages because the structures, risks, and developmental goals are different.



Biomedical teaching illustration: Match each operation to its clinical job

Check your understanding

- Which operation mainly restores form?
- Why is palate timing connected to speech?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D11-E1	Mateo's parents want the lip and nose to have continuous form.	This concern maps to lip repair.
D11-E2	The open palate connects the mouth and nose and cannot support normal oral pressure for speech.	This functional problem maps to palate repair.
D11-E3	Speech sounds begin developing during the same period in which palate repair is commonly planned.	Timing protects a developmental window.

Concrete decision

You are the surgeon explaining the first two operations. The family asks why both problems cannot be fixed in one visit and forgotten.

A. Explain two structures, two jobs, and individualized timing

B. Describe both operations as cosmetic

C. Promise that surgery ends all future care

Decision prompt: Choose the explanation and match each evidence ID to the operation it supports.

Claim ceiling: You may explain typical goals and timing. You may not promise a specific operation date or outcome.

Glossary

Term	Plain-English definition
cheiloplasty	The surgical repair of a cleft lip, rejoining the separated lip tissue to restore a continuous lip and a more typical appearance.
palatoplasty	Surgery that closes a cleft in the roof of the mouth so the palate can separate the nose from the mouth and support speech.
staged care	A treatment plan delivered in planned steps across years, matching each procedure to the right point in a child's growth.
function before form	A care principle that fixing how a structure works, like feeding or speech, takes priority over how it looks.

READING 12 OF 20 | CELLS MOVE

How a Repaired Palate Lets Mateo Talk

How does the soft palate let us make clear speech sounds, and what goes wrong with speech when it cannot seal off the nose?

START WITH

Lip repair restores form, while palate repair separates spaces and supports speech; different jobs require staged operations.

REMEMBER

Clear pressure sounds need the soft palate to move upward and seal the mouth from the nose.

Why this matters

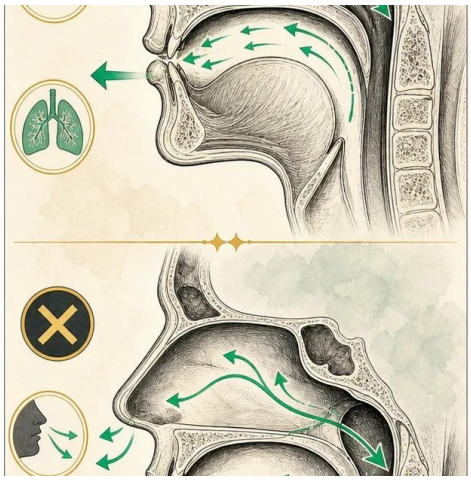
Speech therapy cannot correct a structural air leak by practice alone, so the team must recognize the pattern.

The biology in plain English

The soft palate lifts during many speech sounds and seals the back of the mouth from the nose.

If the seal is incomplete, too much sound enters the nose and air leaks during pressure consonants.

The speech-language pathologist identifies the pattern and helps decide whether therapy, imaging, or another procedure is needed.



Biomedical teaching illustration: Watch the soft palate act as a moving seal

Check your understanding

- Why are p and b affected more than a relaxed vowel?
- What evidence makes this more than an ordinary articulation error?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D12-E1	Mateo's voice sounds overly nasal during connected speech.	Resonance suggests air and sound are entering the nose at the wrong time.
D12-E2	The consonants p, b, t, d, k, and g sound weak and nasal air is visible on a mirror.	Pressure consonants are affected by a seal problem.
D12-E3	Vowels and low-pressure sounds are easier to produce.	The problem is patterned rather than random.

Concrete decision

You are Mateo's speech-language pathologist. You must decide whether today's pattern needs ordinary articulation practice alone or a full velopharyngeal evaluation.

A. Refer for velopharyngeal evaluation while continuing appropriate speech support

B. Practice p sounds only and ignore nasal escape

C. Assume hearing loss is the only cause

Decision prompt: Choose the next step and use the pattern across the three evidence IDs.

Claim ceiling: You may identify a pattern consistent with VPI. You may not diagnose the exact structural cause without further evaluation.

Glossary

Term	Plain-English definition
velopharyngeal closure	The sealing of the soft palate against the back of the throat that closes off the nose during speech and swallowing.
velopharyngeal insufficiency (VPI)	When the soft palate cannot fully close off the nose from the mouth during speech, letting air escape and making speech sound nasal.
hypernasality	A speech quality where too much air escapes through the nose, often when the soft palate cannot fully close off the nasal passage.
pressure consonants	Speech sounds like p, b, t, and s that need built-up air pressure in the mouth, which a cleft or leaky palate makes hard to produce.
speech-language pathologist	A specialist who evaluates and treats problems with speech, language, and feeding, key for children after cleft repair.

READING 13 OF 20 | CELLS MOVE

Protecting Mateo's Hearing

Why do children with a cleft palate get so many ear infections, and how does that threaten hearing?

START WITH

Clear pressure sounds need the soft palate to move upward and seal the mouth from the nose.

REMEMBER

Cleft-related middle-ear fluid can reduce hearing, so repeated hearing checks protect speech development.

Why this matters

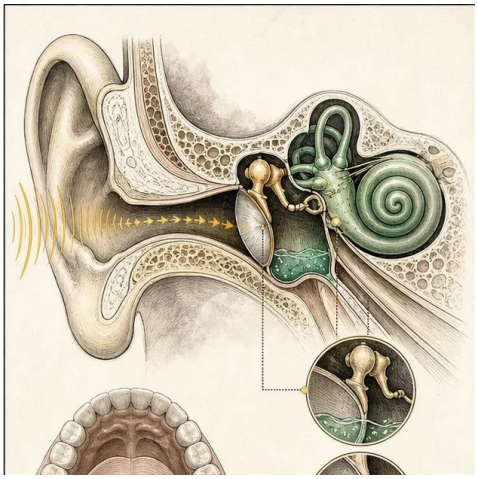
A child must hear speech clearly in order to learn and monitor speech sounds.

The biology in plain English

The Eustachian tube drains the middle ear and helps balance pressure. Muscles near the palate help open it.

In children with cleft palate, the tube may not open well. Fluid can collect and make sound quieter, called conductive hearing loss.

Regular ear examinations and hearing tests catch changes early enough to protect speech and learning.



Biomedical teaching illustration: Connect palate muscles to middle-ear drainage

Check your understanding

- Why can hearing change after a passed newborn screen?
- How can middle-ear fluid affect speech development?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D13-E1	Mateo passed the newborn hearing screen.	Hearing was adequate at that moment, not guaranteed for all later months.
D13-E2	At follow-up, both eardrums show reduced movement and middle-ear fluid.	Sound conduction may now be reduced.
D13-E3	Mateo sometimes does not turn toward soft speech sounds.	The functional observation supports prompt audiology testing.

Concrete decision

You are the audiologist reviewing a passed newborn screen and new ear findings. The family asks whether the original pass means no further hearing checks are needed.

A. Complete age-appropriate hearing testing and coordinate ear management

B. Wait until Mateo fails a school hearing screen

C. Assume speech delay is unrelated to hearing

Decision prompt: Choose the plan and explain why the newborn result does not cancel the new evidence.

Claim ceiling: You may say hearing is at risk and testing is needed. You may not state the degree of loss before audiology results.

Glossary

Term	Plain-English definition
Eustachian tube	A lesson term defined by the surrounding model and case evidence.
otitis media with effusion	Fluid trapped behind the eardrum without active infection, common in cleft palate, which can muffle a child's hearing.
conductive hearing loss	A lesson term defined by the surrounding model and case evidence.
tympanostomy tubes	Tiny tubes a surgeon places through the eardrum to drain fluid and prevent ear infections, common in children with cleft palate.
audiologist	A health professional who tests hearing and balance and manages hearing loss, an important team member for children with cleft palate.

Caring for Mateo's Teeth and Bite

Why does a cleft lip and palate change the teeth and bite, and why is dental care spread across many years?

START WITH

Cleft-related middle-ear fluid can reduce hearing, so repeated hearing checks protect speech development.

REMEMBER

Dental and orthodontic care is staged because teeth, bone, and facial growth change on different schedules.

Why this matters

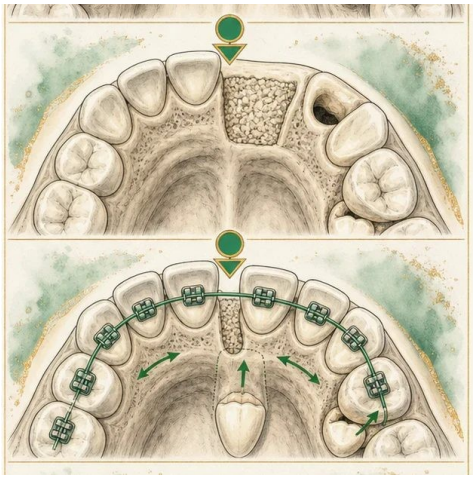
Doing the right procedure at the wrong growth stage can create new problems.

The biology in plain English

The alveolar ridge is the part of the jaw that holds the teeth. A cleft through this ridge can affect tooth number, shape, and position.

Dental care begins early with prevention. Bone grafting and orthodontics happen later, when tooth development and growth create the right window.

The dentist, orthodontist, and surgeon share the sequence so one step prepares for the next.



Biomedical teaching illustration: Sequence care through the tooth-bearing cleft

Check your understanding

- Why are tooth differences predictable near the cleft?
- Which developmental marker helps time later care?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D14-E1	Mateo's cleft passes through the left tooth-bearing alveolar ridge.	Teeth and supporting bone near the cleft are at risk for predictable differences.
D14-E2	One lateral incisor is missing and nearby teeth are rotated.	The dental pattern matches the location of the cleft.
D14-E3	The permanent canine has not yet reached the usual graft-planning stage.	The team must monitor growth and eruption before choosing the next procedure.

Concrete decision

You are the orthodontist at today's team conference. The family asks whether all tooth and bone work should happen immediately.

A. Use preventive dental care now and coordinate later graft and orthodontic timing with eruption

B. Complete every procedure now

C. Ignore the missing tooth until adulthood

Decision prompt: Choose the staged plan and identify what happens now versus what waits for a developmental marker.

Claim ceiling: You may outline the sequence. You may not set a surgery date without current imaging and eruption assessment.

Glossary

Term	Plain-English definition
alveolus (alveolar ridge)	The bony ridge of the upper or lower jaw that holds the tooth sockets; a cleft can break this ridge near the front teeth.
hypodontia	A developmental condition in which one or a few teeth never form, leaving permanent gaps in the dental arch.
supernumerary tooth	An extra tooth beyond the normal count, which can appear near a cleft and crowd or block the regular teeth.
malocclusion	A misalignment of the upper and lower teeth so they do not meet properly when the jaws close.
alveolar bone grafting	A surgery that fills the bony gap in the upper gum of a cleft patient with bone, usually taken from the hip, so adult teeth can grow in.

READING 15 OF 20 | DEVELOPMENT SCULPTS

Is Mateo Growing Well?

Why are cleft infants at risk for poor growth, and how does the pediatrician keep track of whether Mateo is growing and developing well?

START WITH

Dental and orthodontic care is staged because teeth, bone, and facial growth change on different schedules.

REMEMBER

Growth decisions come from trends across time, not one measurement on one day.

Why this matters

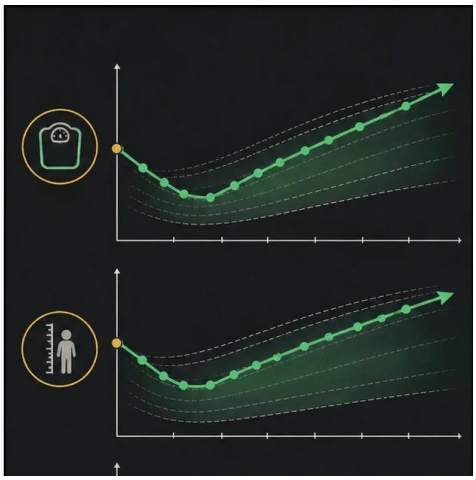
The team needs to know whether care is helping the whole child, not only whether repairs look successful.

The biology in plain English

Growth charts place repeated measurements on the same scale. The line's direction often matters more than one point.

Clinicians track weight, length or height, head growth, and developmental milestones together.

Cleft care can affect feeding and facial growth, so the team keeps checking across childhood rather than declaring the issue finished.



Biomedical teaching illustration: Read Mateo's growth as a longitudinal pattern

Check your understanding

- Why is Mateo's first low weight not enough for today's decision?
- What additional trends help show whole-child development?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D15-E1	Mateo's weight dropped during the first feeding week but rose steadily after the assisted-feeding plan began.	The intervention appears to improve intake.
D15-E2	Length and head circumference continue along their prior percentile bands.	Overall physical growth remains proportionate.
D15-E3	Motor, language, and social milestones are appropriate for the visit.	Developmental progress supports continued monitoring rather than an emergency conclusion.

Concrete decision

You are the pediatrician reviewing the longitudinal record. You must decide whether to admit Mateo for urgent growth failure or continue the current plan with close follow-up.

A. Continue the effective feeding plan with scheduled growth and development checks

B. Base the decision only on the first low weight

C. Ignore all future growth because the latest weight improved

Decision prompt: Choose the plan and describe the trend across all three evidence IDs.

Claim ceiling: You may judge the current trend. You may not promise that later growth or facial development will stay normal.

Glossary

Term	Plain-English definition
failure to thrive	Poor weight gain and growth in an infant or child, often because feeding is difficult or nutrition is not absorbed well.
growth chart (percentile)	A standard chart that compares a child's height, weight, or head size to other children of the same age and sex using percentiles.
developmental milestone	A skill most children reach by a certain age, such as sitting, speaking words, or walking, used to track healthy growth.
midface growth	The forward and downward development of the central face, including the upper jaw and cheeks, which surgery and clefting can affect.
longitudinal monitoring	Following the same patients with repeated check-ups over months or years to track how their condition or treatment changes over time.

Supporting Mateo and His Family Beyond the Body

What does Mateo's family need beyond surgery and medicine, and how can the team meet those needs?

START WITH

Growth decisions come from trends across time, not one measurement on one day.

REMEMBER

Psychosocial care belongs in the treatment plan because health includes confidence, relationships, school, and family well-being.

Why this matters

Long-term health includes how a child feels, learns, communicates, and connects with other people.

The biology in plain English

Psychosocial health includes emotions, relationships, school participation, identity, and family stress.

A cleft does not determine how a person will feel. Teams ask, listen, screen, and respond to the individual rather than assuming.

Support may include social work, psychology, peer connection, school planning, and practical help with the burden of care.

Biomedical teaching illustration: Assess the whole child, not only the repaired anatomy

Check your understanding

- Why should the team ask rather than assume?
- Which strengths in the case can the plan build on?

READING 16 OF 20 | EVIDENCE, DECISION, AND GLOSSARY

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D16-E1	Mateo's family reports stress from repeated appointments and worry about other people's reactions.	Family burden is part of the current health picture.
D16-E2	Mateo participates in class but avoids speaking during a new peer group activity.	A context-specific concern deserves a private, nonjudgmental check-in.
D16-E3	No crisis signs are reported, and Mateo identifies one trusted adult and one supportive friend.	The plan can build on existing strengths while monitoring needs.

Concrete decision

You are the team social worker before a school transition. The family asks whether support is necessary if Mateo is medically stable.

A. Offer a private check-in, family resources, and a school support plan based on Mateo's preferences

B. Wait for a crisis

C. Assume every child with a cleft feels the same

Decision prompt: Choose the support plan and separate the evidence from assumptions about how Mateo feels.

Claim ceiling: You may identify needs reported in the case. You may not assign feelings, diagnoses, or stigma experiences that Mateo did not report.

Glossary

Term	Plain-English definition
psychosocial	Relating to how a condition affects a person's emotions, self-image, and relationships, alongside its physical effects.
stigma	Unfair negative judgment or social shame directed at a person because of a visible difference or health condition.
resilience	The ability to recover and keep functioning well after stress, hardship, or setbacks.
family-centered care	A care approach that treats the family as partners in decisions, respecting their values, needs, and role alongside the medical team.
social worker	A care-team member who helps families navigate resources, costs, support services, and emotional needs around a child's condition.
support care	Care aimed at easing symptoms and helping daily function, such as feeding aids and hearing support, alongside the main treatment.

READING 17 OF 20 | DEVELOPMENT CAN GO WRONG

Does Every Child Like Mateo Get the Same Care?

Does access to cleft care depend on who you are and where you are born, and what does that mean for children like Mateo?

START WITH

Psychosocial care belongs in the treatment plan because health includes confidence, relationships, school, and family well-being.

REMEMBER

Equal treatment is not always equitable care; the plan must remove the barriers that block access to the same health goal.

Why this matters

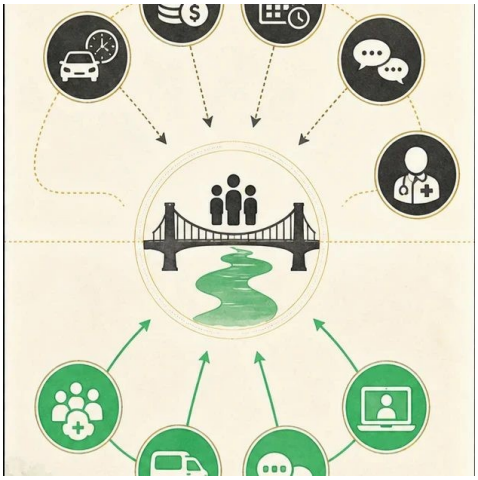
A perfect medical plan cannot help a child if the family cannot reach or use it.

The biology in plain English

Health equity means helping people reach the same fair health goal, even when the path and support must differ.

Common barriers include travel, cost, time away from work, specialist shortages, language, and complicated scheduling.

The team should name the barrier, choose a matching support, and keep the clinical standard clear.



Biomedical teaching illustration: Redesign the route to coordinated cleft care

Check your understanding

- What is the difference between equal and equitable care in this case?
- Which support matches each documented barrier?

READING 17 OF 20 | EVIDENCE, DECISION, AND GLOSSARY

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D17-E1	The family missed two visits because the caregiver could not leave work and the clinic is across the city.	Scheduling and transportation are documented barriers.
D17-E2	The next required services are hearing and speech follow-up, both available through the hospital network.	The clinical goal is clear and should remain unchanged.
D17-E3	The network offers combined appointments, transportation support, and telehealth check-ins when clinically appropriate.	Available supports match the named barriers.

Concrete decision

You are the care coordinator after two missed visits. You need a recovery plan that protects care without blaming the family.

A. Bundle visits, arrange transportation support, and use appropriate telehealth follow-up

B. Discharge the family for noncompliance

C. Lower the hearing and speech goals

Decision prompt: Choose the recovery plan and match each support to one documented barrier.

Claim ceiling: You may respond to the documented barriers. You may not invent income, immigration, language, or family details not in the case.

Glossary

Term	Plain-English definition
health equity	The goal that everyone has a fair chance to be healthy, by removing avoidable barriers tied to income, race, or where people live.
access	The ability of people, especially those with low income or in rural areas, to actually reach and receive the medical care they need.
global burden	The total impact of a disease worldwide, counting how many people it affects and the illness, disability, and cost it causes.
disparity	An unfair, avoidable difference in health or care between groups, often tied to income, geography, race, or access to treatment.
social determinants of health	The conditions in which people live, learn, work, and access care that shape their health beyond their biology.
untreated cleft	A cleft lip or palate that has not been surgically repaired, which can affect feeding, speech, hearing, and dental health over time.

READING 18 OF 20 | DEVELOPMENT SCULPTS

A Repaired Cleft Is Not a Cured Cleft

What can still go wrong for Mateo after his cleft is repaired, and which team member is positioned to catch each problem?

START WITH

Equal treatment is not always equitable care; the plan must remove the barriers that block access to the same health goal.

REMEMBER

A repaired cleft still needs surveillance because speech, hearing, teeth, airway, and growth can change later.

Why this matters

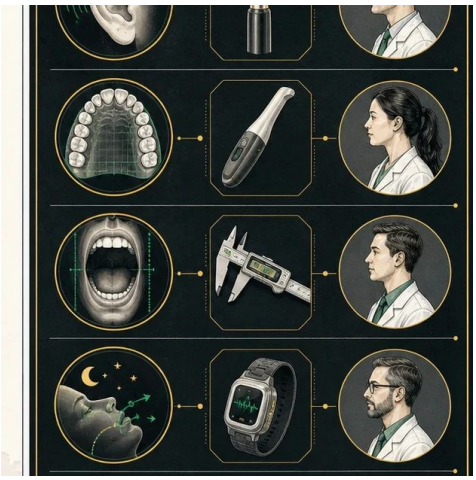
Early detection gives the team more choices and prevents small changes from becoming larger barriers.

The biology in plain English

Repair closes structures, but growth and function continue to change. New concerns can appear in speech, hearing, teeth, jaw growth, sleep, or the surgical site.

Surveillance means checking the right function at planned times and when a new sign appears.

Each concern has a best detection method and a specialist who owns the follow-up.



Biomedical teaching illustration: Match each possible complication to its detector

Check your understanding

- Why is surveillance not the same as expecting a complication?
- Which specialist owns each of today's findings?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D18-E1	Mateo has new nasal air escape during fast speech.	Speech and velopharyngeal function need reassessment.
D18-E2	Hearing is stable, and middle-ear fluid is not present today.	Hearing surveillance continues, but it is not the immediate problem.
D18-E3	The dental team notes a narrowing upper arch during growth.	Orthodontic monitoring needs a separate plan.

Concrete decision

You are leading the annual cleft team review. You must route each finding to the right specialist and decide what happens first.

A. Prioritize speech evaluation, continue hearing surveillance, and schedule orthodontic review

B. Send every finding to the surgeon

C. Declare care complete because the cleft was repaired

Decision prompt: Build the routing plan and cite one evidence ID for each action.

Claim ceiling: You may identify the next evaluation. You may not diagnose the cause of a new problem before the specialist assessment.

Glossary

Term	Plain-English definition
oronasal fistula	An abnormal opening left between the mouth and nose after cleft repair, which can let fluid or air leak through.
velopharyngeal insufficiency	When the soft palate cannot fully seal off the nose during speech, letting air escape and making speech sound nasal.
midface hypoplasia	Underdevelopment of the middle of the face, so the cheeks and upper jaw look flat or set back, common after cleft repair.
obstructive sleep apnea	Repeated pauses in breathing during sleep caused when the airway at the back of the throat narrows or collapses.
surveillance	The ongoing, systematic collection and analysis of health data to detect disease early, track its trends, and trigger a timely public health response.
complication	An unwanted problem that develops during or after treatment, such as infection or a wound that breaks open after surgery.

READING 19 OF 20 | CELLS MOVE

How a Team Delivers Care Without Gaps

Why is cleft care delivered by a coordinated team, and how does that team keep an 18-year plan from developing gaps?

START WITH

A repaired cleft still needs surveillance because speech, hearing, teeth, airway, and growth can change later.

REMEMBER

A cleft team works when specialists share one plan, one record, and clear ownership across time.

Why this matters

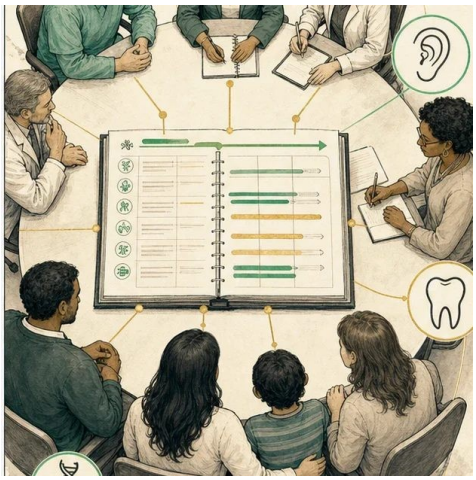
The quality of individual specialists cannot prevent gaps if their plans never connect.

The biology in plain English

Interdisciplinary care means specialists plan together around one child and family, not just work in parallel.

A coordinator tracks the shared plan, helps with handoffs, and makes sure results reach the people who need them.

The record should show the next action, who owns it, when it is due, and what evidence will be shared.



Biomedical teaching illustration: Coordinate many specialists around one child

Check your understanding

- Why is a list of specialists not yet a coordinated team?
- What four items belong in every handoff?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D19-E1	Mateo has three follow-up actions due in different clinics within six months.	Uncoordinated scheduling creates a risk that one action will be missed.
D19-E2	The speech finding affects surgical planning, and hearing status affects speech interpretation.	The specialists' decisions depend on each other's evidence.
D19-E3	The family asks for one contact person and one written plan.	Coordination must be visible and usable to the family.

Concrete decision

You are the cleft team coordinator closing the conference. Before the meeting ends, every next action needs an owner, date window, and handoff.

A. Publish one shared action list with named owners and a family contact

B. Let each clinic contact the family separately

C. Record only the surgery plan

Decision prompt: Choose the coordination plan and show where each evidence item changes the plan.

Claim ceiling: You may assign ownership and sequence. You may not make a specialist's clinical decision without that specialist and the family.

Glossary

Term	Plain-English definition
multidisciplinary team	A lesson term defined by the surrounding model and case evidence.
coordinator	A team member who organizes a patient's many appointments and specialists, keeping multidisciplinary cleft care running smoothly.
continuity of care	Keeping a patient connected to the same coordinated care team over time, so treatment stays consistent across many visits and years.
handoff	The careful transfer of a patient's care and information from one clinician or team to the next so nothing important is missed.
longitudinal care	Ongoing medical care that follows a patient over many years through changing needs, rather than a single one-time treatment.
care plan	A written, organized strategy describing a patient's health needs, goals, and the specific treatments and steps the care team will follow.

READING 20 OF 20 | DEVELOPMENT CAN GO WRONG

Mateo's Complete Clinical Story (and His Diagnosis)

Putting every clue together, what is Mateo's diagnosis, and how do we justify it?

START WITH

A cleft team works when specialists share one plan, one record, and clear ownership across time.

REMEMBER

Mateo's record supports an isolated, nonsyndromic cleft lip and palate with multifactorial risk and lifelong coordinated care.

Why this matters

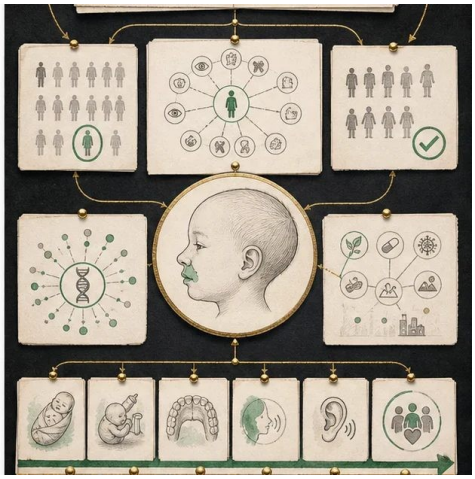
A strong clinical synthesis helps every specialist work from the same honest story.

The biology in plain English

Mateo's anatomy is clear: a complete unilateral left cleft lip and palate.

No repeated pattern of other findings has appeared, so the current classification is isolated and nonsyndromic. That conclusion can be reopened if new evidence appears.

The cause model is multifactorial, and the care plan is longitudinal. The cleft is one developmental difference managed by a coordinated team over time.



Biomedical teaching illustration: Build Mateo's final clinical synthesis

Check your understanding

- What evidence supports each part of the final diagnosis statement?
- What new evidence would make the team reopen the syndromic question?

Case evidence supplied for this lesson

ID	Finding supplied in the case	Why it matters
D20-E1	The anatomy is a complete unilateral left cleft lip and palate.	The structural diagnosis is specific and stable.
D20-E2	Repeated exam, family history, and follow-up show no consistent additional syndrome pattern.	The record supports an isolated, nonsyndromic classification at this time.
D20-E3	No single proven cause is identified, and research supports many contributing gene and environment influences.	A multifactorial risk model fits the evidence.
D20-E4	Mateo needs staged feeding, surgical, speech, hearing, dental, growth, psychosocial, and coordination follow-up.	The diagnosis includes a longitudinal care plan, not only a label.

Concrete decision

You are presenting Mateo at the five-domain grand rounds. The panel asks for one complete diagnosis statement and one condition that would make you reopen it.

A. Isolated nonsyndromic complete unilateral left cleft lip and palate, likely multifactorial, with staged team care

B. A cleft caused by one specific exposure

C. A confirmed syndrome despite no matching pattern

Decision prompt: Choose the synthesis, cite at least three evidence IDs, and name one new finding that would require revision.

Claim ceiling: You may state the best current synthesis. You may not claim certainty about one causal variant or exposure.

Glossary

Term	Plain-English definition
nonsyndromic	Describing a condition, such as a cleft, that occurs on its own without a set of other linked birth differences.
isolated cleft	A cleft of the lip or palate that occurs on its own, without other birth differences or a recognized syndrome.
multifactorial inheritance	A trait caused by many small genetic and environmental factors adding up together, rather than by a single gene alone.
recurrence risk	The chance that a future child in the same family will also be affected by a given condition.
synthesis	Building a molecule in the cell, as in protein synthesis (making a protein from mRNA).
diagnosis of exclusion	A diagnosis reached only after ruling out every other likely cause, since no single test can confirm the condition directly.