Brain Bleeds by Type, and Craniotomy vs Craniectomy Care

Epidural, subdural, subarachnoid, intracerebral and diffuse axonal injury; reversal, BP targets and post-op care

ICU Basics
icubasics.com · checked Nov 2026

WHAT YOU WILL DO

- Know which bleed your patient has and what it threatens: expansion, rebleeding, swelling or hydrocephalus.
- Do neuro checks as ordered (GCS, pupils, strength on each side, speech) and compare with the last one, not just the normal.
- Keep BP in the ordered band; find out every anticoagulant or antiplatelet and the last dose, and get reversal in fast.
- After surgery: check the incision, drains and dressing; protect the open side after a craniectomy.

BLEEDS BY TYPE

Hypertensive ICH is usually deep: basal ganglia, thalamus, pons, cerebellum. Amyloid bleeds are lobar, in older adults.

TYPE	VESSEL	TIMING	CT LOOK	CLASSIC COURSE	USUAL TREATMENT
Epidural	Arterial, often middle meningeal (temporal fracture)	Minutes to hours	Lens-shaped; stops at sutures	Brief LOC, lucid interval in some, then fast decline and a blown pupil	Craniotomy if large (over 30 mL) or declining
Acute subdural	Venous, torn bridging veins	Hours	Crescent; crosses sutures	Often down from the start; injured brain underneath	Craniotomy or craniectomy if over 10 mm thick, shift over 5 mm or GCS falling
Chronic subdural	Bridging veins, slow oozing	Weeks	Crescent, darker or mixed	Older, anticoagulated, falls: confusion, headache, weakness	Burr holes and a drain; embolization in some
Traumatic SAH	Small surface vessels	At injury	Blood in surface grooves	Marks the force of the TBI	Treat the TBI; repeat CT
Aneurysmal SAH	Ruptured aneurysm	Sudden	Blood in the base cisterns	Thunderclap headache; rebleed, hydrocephalus, DCI	Coil or clip; nimodipine
Intracerebral (ICH)	Small deep arteries (hypertension); amyloid; AVM; anticoagulant	Sudden; grows in first hours	Round clot inside brain	Deficit that worsens over hours	BP control, reversal; surgery for some
Diffuse axonal injury	Torn axons (shearing)	At injury	Often normal; MRI better	Coma out of proportion to the CT	Supportive and ICP care

KEY NUMBERS

AHA/ASA 2022 ICH, AHA/ASA 2023 aSAH, NCS/SCCM 2016 and 2026 update, Brain Trauma Foundation 2016. Dose by protocol.

SITUATION	CURRENT ANSWER
Spontaneous ICH, SBP 150–220	Lower to about 140, keep 130–150; start within 2 h; below 130 may harm
Warfarin	4F-PCC plus IV vitamin K; plasma only if no PCC
Dabigatran	Idarucizumab
Apixaban, rivaroxaban, edoxaban	4F-PCC (andexanet is no longer sold in the US)
Heparin; enoxaparin	Protamine; for enoxaparin it reverses only part
Antiplatelet drug	No platelets unless going to neurosurgery (PATCH)
Seizure prophylaxis	Not in spontaneous ICH; 7 days in severe TBI
Aneurysmal SAH	Nimodipine 60 mg enterally every 4 h for 21 days; watch for DCI days 4–14; keep euvolemic
Severe TBI	SBP at least 100 (age 50–69) or 110 (15–49, over 70); CPP 60–70; treat ICP above 22

CRANIOTOMY VS CRANIECTOMY

	CRANIOTOMY	DECOMPRESSIVE CRANIECTOMY
Bone flap	Put back and fixed	Left out: frozen in a bone bank or placed under abdominal skin
Why	Remove a clot or tumor, clip an aneurysm	Give swelling brain room when ICP will not come down
Positioning	HOB 30° unless ordered otherwise	HOB 30°; never lie on the open side
Out of bed	Usual precautions	Helmet on whenever up
Watch for	New clot, swelling, seizure, CSF leak, infection	Same, plus a sunken flap with decline when upright (sinking skin flap syndrome)

- Drains: keep at the ordered height or suction; never strip, flush or move them without an order; record output and color.
- Clear fluid from the incision, nose or ear may be CSF: report it.
- Control pain, nausea, fever and glucose; prevent straining.

CALL FOR HELP WHEN

- GCS falls by 2 or more, a pupil changes, or new weakness or speech trouble appears.
- A seizure, or rising SBP with a slowing heart rate.
- The craniectomy site turns tight and bulging, or sinks while the patient declines.
- A drain suddenly runs fast, turns bright red, or stops.
- SBP leaves the ordered band, or the incision bleeds.

SAFETY A patient on an anticoagulant with a head bleed is a time emergency: draw labs, but do not wait for them to start reversal when it is ordered.

UNIT-SPECIFIC

Check your unit's policy for neuro check frequency after surgery, bed position with a subdural drain, helmet orders, where bone flaps are stored and documented, and reversal dosing.

Sources (14) are listed with links at icubasics.com/sheets/brain-bleeds-crani.html. For education and exam preparation only. Not medical advice; follow current guidelines and your institution's protocols. ICU Basics is an independent study aid not affiliated with any certifying body.