There is a table in slide #28 shows that:

* If the child came **after less than 15 min** from the trauma : if the root is **mature** with a closed apex clean it with HBSS and implant it , if **immature** with open apex put it in 5% doxycycline for 5 min to guarantee that there is no infection in the apical area then implant it.
* If the patient came between **15 min and less than 24 hours,** if the root is mature and it was stored in good media you implant it immediately, if the root is **immature** we put it in 5% doxycycline for 5 minutes.
* If the pt came **between 15min and 24 hours** and it was stored in bad media, in case of **mature** root we have to put the tooth in HBSS for 30min. if the root is **immature** put it in HBSS for 30 min then put it in 5% doxycycline for 5 min.
* If the pt came **after 24h** (either good media or bad media), we will think about healing by ankylosis because the periodontal ligament become unable to attach to the tooth (we don’t depend on the PL cells to induce the attachment).

Management will be as the following (by ankylosis) for both mature and immature roots:

1. We make shaving to the tooth (remove all the dead periodontal cells on the tooth and root) by a carver.
2. Put it in sodium hypochlorite for 30min.
3. Endo treatment outside the socket by instrumentation.
4. Citric acid for 3 min.
5. Doxycycline 5% for 5 min.
6. Dry the canal.
7. Put non sitting calcium hydroxide.
8. GP filling.
9. Then put it in the refrigerator for 1 month (wait until healing occurs in the gingival, periodontium and the area of trauma).
10. Open the socket with a sterile round bur then insert the tooth).
11. Then do splinting (we extend the splinting time) because we want the healing by ankylosis, (increase the splinting time causing ankylosis).
12. Ankylosis begins after 4 months of trauma.
13. Resorption begins at 3 weeks after trauma.

* After avulsion a clot will be formed in the socket, we should keep it, because if we try to remove the clot we might injure the periodontal cells that are attached to the alveolar bone, so just insert the tooth inside the socket then we go for splinting.
* **Splinting:**

Direct splint; put composite on the affected tooth and on the two adjacent teeth in both sides and fix with a wire. Here we splint for 7-10 days.

If the tooth was implanted immediately after trauma, before we remove the splint we should do root canal filling; debridement, instrumentation and Ca(OH)2 for 1 week.

* Notes:
* In the past calcium hydroxide was left in the canal for 6 months but it results in resorption mainly internal resorption (disintegration of dentin and cementum).
* There are problems with injecting calcium hydroxide:

If we inject calcium hydroxide (suppose that we have working length for example 18mm, then we inject the calcium hydroxide and withdraw during injection to spread it in the canal, then we make condensation by paper points (it's not a true condensation actually it will make spreading of the material in the canal), so we inject 3 times, to fill it without leaving areas with bubbles), then we put good temporary restoration using glass ionomer to provide a good seal.

We leave it for 1 week due to its **bactericidal effect** not to inhibit internal resorption.

* Sometimes even if the pt comes within 30 min we can’t reimplant the tooth in its original place because the socket has laceration, bleeding and broken parts so we have to wait until healing is completed.

**Trauma to the primary teeth:**

-Trauma to primary teeth is easy to treat and manage, mostly extraction, and if the patient can't stand extraction under LA we do it under GA, nitrous oxide or sedation.

-There is a study about prevalence of primary teeth injury, and it shows that the prevalence is 11-30% of children and in Jordan 18-19%.

-What we worry about is the effect of the trauma on the permanent tooth germ.

-We should know the position of the permanent successor; usually the permanent tooth germ found behind or palatal to the primary tooth and it is near the apex of the primary.

-This proximity leads to risk complications to the permanent teeth, because the trauma energy will be transmitted to the permanent tooth germ that leads to movement or necrosis in the tooth germ.