Surgery may be necessary if the hip remains dislocated following a trial of bracing, or if a hip dislocation is first detected in an older child (Figure 1).

The hip is examined under a general anaesthetic using an X-ray and arthrogram procedure. This is where an X-ray visible fluid is injected into the hip joint to define the joint surfaces more clearly. It allows the Orthopaedic Surgeon to determine if the hip can be correctly repositioned and how stable the hip joint is. This is known as a closed reduction.

If a closed reduction is unsuccessful, an open reduction is required. An open reduction is an operation which is usually done through a small incision in the groin area. Tight structures around the hip joint are released to allow the femoral head to sit in the correct position.

The hip position is then held in a special plaster cast called a hip spica (Figure 2). This is worn for 6 weeks before the hip is again examined under general anaesthetic. If the hip position is stable, the child will wear a brace for a period of time. If the hip remains unstable, the hip spica is reapplied for another 6 weeks period, before using a brace. Braces most commonly used include the Dennis Brown brace and Hippo/Rhino brace (Figure 3).

Complications of brace treatment or surgery may include avascular necrosis of femoral head. This is where the blood supply to the femoral head is interrupted, and affects development and growth of the hip. This may not be evident until the child is older, hence the need for ongoing and careful follow-up by an Orthopaedic Surgeon.

In late diagnosis of DDH (18 months and older), bony surgery around the pelvis is usually required to reposition the femoral head correctly into the acetabulum.

Early diagnosis and treatment of DDH is important since late diagnosis is often associated with poor outcome and may require more complex surgery. Undiagnosed DDH, if left untreated, can result in hip pain and the early development of osteoarthritis.

Figures:
- **Figure 1.** Normal hip anatomy (left) and DDH (right) – 1. cup shaped socket (acetabulum); 2. femoral head; 3. femur (upper leg bone); 4. dislocated joint with DDH.
- **Figure 2.** Hip spica cast.
- **Figure 3.** Dennis Brown (DB) brace (left) and Hippo/Rhino brace (right).