

# Guide to Truncus – the Odyssey

Since my days as a medical student, I've always thought of the heart beat as a waltz or a shuffle. I've been tempted to write a drum part with the heart beat as the foundation for a long time. I had the idea to tell the story of a newborn with congenital heart disease through the stages of pre-operative life, cardiac surgery, and post-op ICU care. I chose Truncus Arteriosus as the specific congenital heart disease because of the rapid neonatal course and the rich sonic landscape it provides. Though it's routine to us, there is an insane density of drama and emotion in this brief period of life. To make it musically interesting and "spice" things up a bit, I incorporated all sorts of physical exam findings and arrhythmias into the piece (and took a few percussive liberties to make it easier on the ears).

## Part I: A Fresh Life (0:00 – 0:40)

- The bass drum kicks in with a heart rate of about 150 bpm. Initially, S1 & S2 are normal on the "a" and downbeat but after 8 bars a snare drum rim shot begins coinciding with S1 representing the systolic ejection click of the truncal valve.
- Next, the snare drum kicks in with a diastolic decrescendo murmur (sort of a buzz-press) lining up with S2, representing the truncal valve insufficiency which dooms the neonate, unless he is saved by a surgeon. Maybe the drum fills correspond with line placement and intubation.
- Eventually the heart beat slow down and starts to skip beats. This represents increasing vagal tone with Wenckebach as the baby is anesthetized for cardiac surgery.

## Part II: Under the Knife (0:40 – 1:30)

- The rhythm on the ride cymbal symbolizes the machines and beeping of the operating room prior to surgery.
- Cardiac surgery begins, represented by powerful and precise drumming on the tom-toms. To me, there's not much more powerful and intense than cardiac surgery, so I wanted my drumming to reflect the respect I have for the surgeons and their work.
- As the toms subside and the cymbal returns, you can imagine that the critical elements of surgery are over and the surgeon and cardiologist are testing the results. It's a dramatic phase of surgery, the moment of truth – did everything go as hoped? Is the truncal valve functioning well?

## Part III: Syncopated Strangers (1:31 – 2:13)

- Just because the post-op TEE looked perfect, doesn't mean there's not more in store for this baby. A latin bossa nova kicks in with a fast, thumping bass representing a tachycardia of some sort. The snare drum rate is faster than the bass rate. provided by University of Nebraska Medical Center Research: DigitalCommons@UNMC
- The Latin arrhythmia transitions to a new one: atrial flutter with variable conduction. The astute listener will notice a variable snare:bass ratio of 4:1, 3:1, and eventually 2:1. As the ventricular rate gets progressively faster, the baby becomes more unstable and electrical cardioversion is performed at the climax of the piece (2:01). COBE
- After a brief pause, sinus rhythm returns – and there is no click or murmur. The ending is intentionally open-ended, but we all hope for a smooth recovery.