Artificial Intelligence in Clinical practice – Panel 1
An Ultrasound AI use case:
Reliable, accurate and reproducible fetal brain measurements

Belen Soto Bodí
Sr. Dr. AI Strategic Data Engagement Leader EMEA
GE Healthcare
Why AI?

- Sonographic evaluation of fetal brain aiming at early detection of abnormalities during pregnancy is very operator-dependent
- The ISUOG recommendation requires obtaining three planes:
  - Trans Thalamic Plane (TTP)
  - Trans Ventricular Plane (TVP)
  - Trans Cerebellar Plane (TCP)
  ...and execute 5 measurements on this plane
- Today most users acquire 2D planes and manually perform the measurements

Would AI help with a less operator-dependent method of evaluating brain structures and biometry, so the diagnostic process would be more reliable?
SonoCNS
An AI powered function in the Ultrasound equipment

• Offers a different workflow:
  ✓ User acquires a 3D volume of foetal brain
  ✓ The ultrasound system will propose the three required planes
  ✓ Once set, at the press of a button, the 5 required measurements are performed

• Improved Workflow
• Accurate Measurements
• Reproducible Results
• Reliable, less operator dependent

Results
The automated measurements were within acceptable range when comparing case-by-case and measurement-by-measurement. The largest discrepancy (not more than 9%) was seen in the measurement of the posterior ventricle. The application was unable to yield measurements in two cases due to inadequate volumes from suboptimal views obtained in high BMI patients; this reinforces the well-known fact that 3D volumes are only as good as the 2D images on which they are based.