

**Recommended techniques for initial/ongoing assessment of cardiac anatomy and function in patients with MPS<sup>4</sup>**

**ECG**

- Surface 12-lead: rhythm, conduction blocks, bundle branch blocks
- Holter 24-hours: rhythm, heart rate (values and variability by time and frequency domain), supraventricular and ventricular arrhythmia

**ECHO**

- |                    |                                   |
|--------------------|-----------------------------------|
| • 2D transthoracic | Posterior wall thickness          |
| • M mode           | Interventricular septal thickness |
| • Doppler          | Left ventricular dimension        |
| • Color doppler    | Left ventricular mass/hypertrophy |
| • Tissue doppler   | Left ventricular function         |
|                    | Valve thickness and function      |

Adapted from Braunlin, J Inherit Metab Dis, 2011.

Abbreviations: 2D, 2-dimensional; BP, blood pressure; ECG, electrocardiography; ECHO, echocardiography.