**NORMAL VALUES OF M-MODE ECHOCARDIOGRAM**

**IN INFANTS AND CHILDREN (P < 0.05)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **HEIGHT (cm)** | **AO (mm)** | **LA**  **(mm)** | **IVS (mm)** | | **LVPW (mm)** | | **LV (mm)** | |
| **Diastole** | **Systole** | **Diastole** | **Systole** | **Diastole** | **Systole** |
| 45  50  55  60  65  70  75  80  85  90  95  100  105  110  115  120  125  130  135  140  145  150  155  160  165  170  175  180 | 0.83  0.54 – 1.13  0.93  0.64 – 1.23  1.03  0.73 – 1.32  1.12  0.82 – 1.41  1.20  0.91 – 1.49  1.28  1.00 – 1.57  1.36  1.08 – 1.65  1.44  1.15 – 1.73  1.51  1.23 – 1.80  1.59  1.30 – 1.87  1.66  1.37 – 1.95  1.73  1.44 – 2.02  1.79  1.50 – 2.08  1.86  1.57 – 2.15  1.92  1.63 – 2.22  1.98  1.69 – 2.28  2.05  1.75 – 2.34  2.11  1.81 – 2.40  2.17  1.87 – 2.46  2.22  1.92 – 2.52  2.28  1.98 – 2.58  2.34  2.03 – 2.64  2.39  2.09 – 2.70  2.44  2.14 – 2.75  2.50  2.19 – 2.81  2.55  2.24 – 2.86  2.60  2.29 – 2.91  2.65  2.34 – 2.96 | 1.15  0.67 – 1.64  1.24  0.76 – 1.72  1.32  0.85 – 1.80  1.40  0.93 – 1.87  1.47  1.00 – 1.94  1.54  1.08 – 2.01  1.61  1.15 – 2.08  1.68  1.21 – 2.15  1.74  1.28 – 2.21  1.81  1.34 – 2.28  1.87  1.40 – 2.34  1.93  1.46 – 2.40  1.99  1.51 – 2.46  2.04  1.57 – 2.52  2.10  1.62 – 2.58  2.15  1.67 – 2.63  2.21  1.72 – 2.69  2.26  1.77 – 2.74  2.31  1.82 – 2.80  2.36  1.87 – 2.85  2.41  1.92 – 2.90  2.46  1.96 – 2.95  2.50  2.01 – 3.00  2.55  2.05 – 3.05  2.60  2.09 – 3.10  2.64  2.14 – 3.15  2.69  2.18 – 3.19  2.73  2.22 – 3.24 | 2.40  0.83 – 3.98  2.68  1.11 – 4.24  2.94  1.38 – 4.49  3.18  1.64 – 4.73  3.42  1.89 – 4.96  3.65  2.12 – 5.18  3.87  2.34 – 5.40  4.09  2.56 – 5.61  4.29  2.77 – 5.82  4.50  2.96 – 6.03  4.69  3.15 – 6.23  4.88  3.34 – 6.43  5.07  3.52 – 6.62  5.25  3.69 – 6.81  5.43  3.86 – 6.99  5.60  4.03 – 7.17  5.77  4.19 – 7.35  5.94  4.35 – 7.53  6.10  4.51 – 7.70  6.26  4.66 – 7.87  6.42  4.81 – 8.04  6.58  4.95 – 8.20  6.73  5.10 – 8.36  6.88  5.24 – 8.52  7.03  5.38 – 8.67  7.17  5.52 – 8.83  7.32  5.65 – 8.98  7.46  5.79 – 9.13 | 3.94  1.27 – 6.61  4.37  1.72 – 7.02  4.78  2.14 – 7.41  5.17  2.55 – 7.78  5.54  2.93 – 8.14  5.90  3.30 – 8.49  6.24  3.65 – 8.83  6.58  3.99 – 9.17  6.90  4.31 – 9.50  7.22  4.62 – 9.82  7.52  4.92 – 10.13  7.82  5.21 – 10.44  8.11  5.49 – 10.74  8.40  5.76 – 11.04  8.67  6.02 – 11.33  8.95  6.28 – 11.61  9.21  6.53 – 11.89  9.47  6.78 – 12.17  9.73  7.02 – 12.44  9.98  7.26 – 12.70  10.23  7.49 – 12.96  10.47  7.72 – 13.22  10.71  7.94 – 13.47  10.94  8.16 – 13.72  11.17  8.38 – 13.97  11.40  8.59 – 14.21  11.63  8.80 – 14.45  11.85  9.01 – 14.68 | 2.20  0.51 – 3.89  2.48  0.79 – 4.16  2.74  1.06 – 4.42  3.00  1.32 – 4.68  3.24  1.57 – 4.92  3.48  1.81 – 5.15  3.70  2.03 – 5.38  3.92  2.25 – 5.60  4.14  2.46 – 5.81  4.34  2.67 – 6.02  4.54  2.87 – 6.22  4.74  3.06 – 6.42  4.93  3.25 – 6.61  5.12  3.43 – 6.80  5.30  3.61 – 6.98  5.48  3.79 – 7.16  5.65  3.96 – 7.34  5.82  4.13 – 7.52  5.99  4.29 – 7.69  6.15  4.45 – 7.86  6.31  4.61 – 8.02  6.47  4.76 – 8.19  6.63  4.91 – 8.35  6.78  5.06 – 8.51  6.94  5.21 – 8.66  7.08  5.35 – 8.82  7.23  5.49 – 8.97  7.38  5.63 – 9.12 | 4.12  1.72 – 6.52  4.60  2.22 – 6.98  5.06  2.70 – 7.43  5.50  3.15 – 7.85  5.92  3.58 – 8.26  6.33  4.00 – 8.66  6.72  4.39 – 9.05  7.10  4.77 – 9.42  7.46  5.14 – 9.79  7.82  5.49 – 10.16  8.17  5.83 – 10.51  8.51  6.15 – 10.86  8.83  6.47 – 11.20  9.16  6.78 – 11.53  9.47  7.09 – 11.85  9.78  7.38 – 12.17  10.08  7.67 – 12.49  10.37  7.95 – 12.79  10.66  8.23 – 13.10  10.95  8.50 – 13.39  11.23  8.77 – 13.69  11.50  9.03 – 13.97  11.77  9.28 – 14.26  12.04  9.54 – 14.53  12.30  9.79 – 14.81  12.55  10.03 – 15.08  12.81  10.27 – 15.35  13.06  10.51 – 15.61 | 16.5  11.4 – 21.7  18.2  13.1 – 23.3  19.8  14.7 – 24.8  21.3  16.2 – 26.3  22.7  17.7 – 27.7  24.1  19.1 – 29.1  25.4  20.4 – 30.4  26.7  21.7 – 31.7  27.9  23.0 – 32.9  29.2  24.2 – 34.2  30.3  25.3 – 35.4  31.5  26.5 – 36.5  32.6  27.6 – 37.7  33.7  28.6 – 38.8  34.8  29.7 – 39.9  35.8  30.7 – 41.0  36.8  31.7 – 42.0  37.9  32.7 – 43.0  38.8  33.6 – 44.1  39.8  34.6 – 45.0  40.8  35.5 – 46.0  41.7  3.64 – 47.0  42.6  37.3 – 47.9  43.5  38.2 – 48.9  44.4  39.0 – 49.8  45.3  39.9 – 50.7  46.2  40.7 – 51.6  47.0  41.5 – 52.5 | 11.6  7.5 – 15.7  12.6  8.5 – 16.7  13.6  9.6 – 17.7  14.6  10.5 – 18.6  15.5  11.5 – 19.5  16.4  12.4 – 20.4  17.2  13.2 – 21.2  18.1  14.0 – 22.1  18.9  14.8 – 22.9  19.6  15.6 – 23.6  20.4  16.3 – 24.4  21.1  17.1 – 25.2  21.8  17.7 – 25.9  22.5  18.4 – 26.6  23.2  19.1 – 27.3  23.9  19.7 – 28.0  24.5  20.4 – 28.7  25.1  21.0 – 29.3  25.8  21.6 – 30.0  26.4  22.2 – 30.6  27.0  22.8 – 31.2  27.6  23.3 – 31.9  28.2  23.9 – 32.5  28.8  24.4 – 33.1  29.3  25.0 – 33.6  29.9  25.5 – 34.2  30.4  26.0 – 34.8  31.0  26.6 – 35.4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **0 – 1 week** | **1 week – 6 months** | **6 months – 5 years** | **5-15 years** |
| **RV (diastole) (mm)**  **EF (%)** | 12.1 (8.0 – 15.5 )  30 (16 – 42) | 9.9 (6.8 – 13.0)  30 (17 – 42) | 10.4 (6.0 – 15.0)  34 (26 – 41) | 13.4 (8.5 – 20.0)  33 (25 – 42) |

**DIAMETRE DE L’ANNEAU (mm)**

***30***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***29*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***28*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***27*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***26*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **TRICUSPID** | |
| ***25*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***24*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***23*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***22*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***21*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***20*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **MITRALE** | |
| ***19*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***18*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***17*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***16*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***15*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***14*** |  |  |  |  |  |  |  |  |  |  |  |  | **ARTERE PULMONAIRE** | | | |
| ***13*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***12*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **AORTE** | |
| ***11*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***10*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***09*** |  |  |  |  |  |  |  |  |  |  |  |  | **BRANCHES PULMONAIRE** | | | |
| ***08*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***07*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***06*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***05*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***04*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***03*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***4*** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** |

**POIDS (kg)**

**VALEURS NORMALES POUR LES ENFANTS**

**EN FONCTION DE LA SURFACE CORPORELLE**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Surface corporelle**  **(m2)** | **Moyenne (mm)** | **Valeurs extremes**  **mm)** |
| **V.D.** | < 0.5  0.6 – 10  1.1 – 1.5  > 1.5 | 08  10  12  13 | 03 – 13  04 – 18  07 – 17  08 – 18 |
| **DTD – V.G.** | < 0.5  0.6 – 10  1.1 – 1.5  > 1.5 | 24  34  40  47 | 13 – 32  24 – 42  33 – 47  42 – 52 |
| **SIV – PPVG (diastole)** | < 0.5  0.6 – 10  1.1 – 1.5  > 1.5 | 05  06  07  08 | 04 – 06  05 – 07  06 – 08  07 – 09 |
| **O.G.** | < 0.5  0.6 – 10  1.1 – 1.5  > 1.5 | 17  21  24  28 | 07 – 24  18 – 28  20 – 30  21 – 37 |
| **AO** | < 0.5  0.6 – 10  1.1 – 1.5  > 1.5 | 12  18  22  24 | 07 – 15  14 – 22  17 – 27  20 – 28 |
| **S.S.A** | < 0.5  0.6 – 10  1.1 – 1.5  > 1.5 | 08  13  16  18 | 05 – 10  09 – 16  13 – 19  15 – 20 |

**ACCEPTABLE PULMONARY VALVE RING DIAMETER**

**(Employed by Kirklin in 1975-1976)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Weight (kg)** | **Minimum Ring Size Diameter (mm)** | **Area (mm2)** | **Half Sizes (mm)** |
| 3  4  5  6  7  8  9  10  12  14  16  18  20  25  30  35  40 | 4  5  6  7  7.5  08  09  9.5  10  11  12  13  13.5  14  15  17  18.5  20  20 | 13  20  28  39  45  50  64  72  79  85  113  133  144  154  177  227  270  314  314 | 4  5  5.5  6  6.5  6.5  7  7.5  8.5  9  9.5  10  11  12  13  14  14 |

**MEAN NORMAL VALVE DIAMETERS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BSA**  **(mm2)** | **Mitral**  **(mm)** | **Tricuspid (mm)** | **Aortic**  **(mm)** | **Pulmonic**  **(mm)** |
| 0.25  0.30  0.35  0.40  0.45  0.50  0.60  0.70  0.80  0.90  1.0  1.2  1.4  1.6  1.8  2.0 | 11.2  12.6  13.6  14.4  15.2  15.8  16.9  17.9  18.8  19.7  20.2  21.4  22.3  23.1  23.8  24.2 | 13.4  14.9  16.2  17.3  18.2  19.2  20.7  21.9  23.0  24.0  24.9  26.2  27.7  28.9  29.1  30.0 | 7.2  8.1  8.9  9.5  10.1  10.7  11.5  12.5  13.0  13.4  14.0  14.8  15.5  16.1  16.5  17.2 | 8.4  9.3  10.1  10.7  11.3  11.9  12.8  13.5  14.2  14.8  15.3  16.2  17.0  17.6  18.2  18.0 |