**LEXICON FOR DEVELOPMENT OF CLASSIFICATION ALGORITHM**

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| Outcomes of interest | Base string | Classification Labels | Associated keywords/Phrases/Values |
| Mitral Regurgitation | Mitral Regurgitation, MR | 1. Mild | Trace, possible mitral regurgitation present, possible MS present, trivial, least, clinically insignificant, trace-mild, Mild, minimal, trace/mild, trace-to-mild, no significant, insignificant , minimal, midl |
| 2. Mild to Moderate | Mild to Moderate, mild-to-moderate, mild-mod, mild-tp-moderate, mild-to-mod, mild-tp-moserate, mild-to-moserate, mild-moserate, midl to moderate |
| 3. Moderate | Moderate, modate, mdrate |
| 4. Moderate to Severe | Moderate-to-severe,mod-sev,moderate-tp-severe,mod-severe,moderate but cannot exclude severe, moderate to severe, mod-tp-sev, mod-tp-severe, moderate-tp-sev, moderately severe |
| 5. Severe | Severe, sev, critical |
| 6. Indeterminate | Absence of above Associated keywords/Phrases (1-5), cannot rule out MR, cannot rule out Mitral regurgitation, can’t rule out, cannot exclude |
| 7. Normal Cases (negative) | Absence of the above keywords/phrases and base string, No, no evidence of, uncertain, without |
| Mitral Stenosis | Mitral Stenosis, MS | 1. Mild | Trace, possible mitral stenosis present, MS present, trivial, least, Clinically insignificant, trace-mild, Mild, minimal, trace/mild, trace-to-mild, no significant, insignificant , minimal, midl |
| 2. Mild to Moderate | Mild to Moderate, mild-to-moderate, mild-mod, mild-tp-moderate, mild-to-mod, mild-tp-moserate, mild-to-moserate, mild-moserate, midl to moderate |
| 3. Moderate | Moderate, modate, mdrate |
| 4. Moderate to Severe | Moderate-to-severe,mod-sev,moderate-tp-severe,mod-severe,moderate but cannot exclude severe, moderate to severe, mod-tp-sev, mod-tp-severe, moderate-tp-sev, moderately severe |
| 5. Severe | Severe, sev, critical |
| 6. Indeterminate | Absence of above Associated keywords/Phrases (1-5), cannot rule out MR, cannot rule out Mitral regurgitation, can’t rule out, cannot exclude |
| 7. Normal Cases (negative) | Absence of the above keywords/phrases and base string, No, no evidence of, uncertain, without |
| Aortic Regurgitation | Aortic regurgitation, AR | 1. Mild | Trace, possible mitral stenosis present, MS present, trivial, least, clinically insignificant, trace-mild, mild, minimal, trace/mild, trace-to-mild, no significant, insignificant , minimal, midl |
| 2. Mild to Moderate | mild to moderate, mild-to-moderate, mild-mod, mild-tp-moderate, mild-to-mod, mild-tp-moserate, mild-to-moserate, mild-moserate, midl to moderate |
| 3. Moderate | moderate, modate, mdrate, mod |
| 4. Moderate to Severe | moderate-to-severe,mod-sev,moderate-tp-severe,mod-severe,moderate but cannot exclude severe, moderate to severe, mod-tp-sev, mod-tp-severe, moderate-tp-sev, moderately severe |
| 5. Severe | Severe, sev, critical |
| 6. Indeterminate | Absence of above Associated keywords/Phrases (1-5), cannot rule out MR, cannot rule out Mitral regurgitation, can’t rule out, cannot exclude |
| 7. Normal Cases (negative) | Absence of the above keywords/phrases and base string, No, no evidence of, uncertain, without |
| Aortic Stenosis | Aortic valve stenosis, aortic stenosis, AS | 1. Mild | Trace, possible mitral stenosis present, MS present, trivial, least, Clinically insignificant, trace-mild, mild, minimal, trace/mild, trace-to-mild, no significant, insignificant , minimal, midl |
| 2. Mild to Moderate | mild to moderate, mild-to-moderate, mild-mod, mild-tp-moderate, mild-to-mod, mild-tp-moserate, mild-to-moserate, mild-moserate, midl to moderate |
| 3. Moderate | moderate, modate, mdrate, mod |
| 4. Moderate to Severe | moderate-to-severe,mod-sev,moderate-tp-severe,mod-severe,moderate but cannot exclude severe, moderate to severe, mod-tp-sev, mod-tp-severe, moderate-tp-sev, moderately severe |
| 5. Severe | severe, sev, critical |
| 6. Indeterminate | absence of above associated keywords/Phrases (1-5), cannot rule out MR, cannot rule out mitral regurgitation, can’t rule out, cannot exclude |
| 7. Normal Cases (negative) | absence of the above keywords/phrases and base string, No, no evidence of, uncertain, without |
| Flow Gradient | Aortic valve stenosis/aortic stenosis/AS along with ‘Low flow’, ‘low flow’,’ low-flow’ | 1.Low Flow Low Gradient | When normal and paradoxical is absent |
| 2. Paradoxical Low Flow Low Gradient | paradoxical |
| 3.Normal Flow Gradient | Normal flow or absence of above phrases/keywords and base string |
| Diastolic Function | Diastolic function/Grade | 1.Normal | Normal diastolic function, low-normal diastolic function |
| 2.Grade I | Grade I |
| 3.Grade II | Grade II |
| 4.Grade III | Grade III |
|  |  | 5.Indeterminate | Unable to assess |
| Ejection Fraction | Ejection fraction, LVEF, EF, estimated EF left ventricular ejection, 3D EF, fraction, left ventricular systolic function, systolic ventricle, cardiac function, ventricular contractility, systolic contractility, | 1.Numeric Values | All numeric values |
| 2.Ranges | All ranges |
| 3.Qualitative | Around, severe, moderate, mild to moderate, moderate to severe, poor, sluggish, reduce, decrease, depress, impair, abnormal, preserved, abnormal, intact, adequate, good, satisfactory, excellent, hyperdynamic, hyperkinetic, vigorous, |
|  |  | 4.Not available or missing | Technical difficulty, cannot estimate, unable to assess |
| Mitraclip | Mitral valve | Mitra Clip (Yes=1,N0=1) | mitraclip |
| Prosthetic | Mitral valve | Prosthetic Valve, (Yes=1,N0=1) | Bioprosthetic, prosthetic, paravalvular, transvalvular, mechanical, surgical ring, TAVR |

Table 1: Lexicon consisting of keywords and phrases to define the classification algorithm rule from 2,000 samples of extracted echo semi-structured data

**LEXICON FOR ASSIGNMENT OF EJECTION FRACTION FROM KEYWORDS**

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| --- | --- |
| Keywords | Ejection fraction assignment |
| Severe | 16 |
| moderate, poor, moderate, sluggish, reduce, decreased, depressed, impair, abnormal, below normal, mild, mild to moderate | 45 |
| normal, no abnormal, intact, preserved, adequate, good, satisfactory, excellent | 55 |
| hyperdynamic, hyperkinetic, vigorous | 70 |

Table 2: Ejection fraction assignment rule for qualitative EF.