Use what you have
Do what you can

Dr. Fadi Khazaal (Cardiology Fellow 3rd Y)
Dr. Abdelhaleem Shawky Hamada (Cardiology Consultant)
Patient Information

• 29 years old Bangladeshi gentleman
Chief Complaint

• SOB
History of Present Illness

- SOB over the last 3 days associated with dry cough, orthopnea and PND.
- Fever.
- No chest pain, dizziness or palpitation.
Review of Systems

• Unremarkable
Past Medical History

- Mitral valve replacement in 2012 with mechanical valve.
Medications

• Warfarin
Allergy

- No known allergies.
Social History

- Non smoker
- Non alcoholic
- Unemployed
- Lives with 6 roommates.
Family History

• Unremarkable
Physical Exam

• T: 37.3 °C (Oral) HR: 130  RR: 39  BP: 98/61 SpO2: 97%

• General: alert, oriented, distressed.
  Chest: **bilateral crackles up to midzone**.
  CVS: tachycardia, audible heart mechanical valve.
  Abdomen: soft, lax and non-tender.
  No LL edema.
Recommendations for the imaging assessment of prosthetic heart valves: a report from
the European Association of Cardiovascular Imaging endorsed by the Chinese Society
of Echocardiography, the Inter-American Society of Echocardiography, and the Brazilian
Department of Cardiovascular Imaging

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Received 6 January 2016; accepted after revision 7 January 2016
Echocardiographic and Doppler parameters in evaluation of prosthetic mitral valve function

• PHT Pressure Half Time (ms)
• PV Peak Velocity (m/s)
• MG Mean Gradient (mmHg)
• EOR Effective Orifice Area (cm²)
• DVI Doppler Velocity Index
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<th>Normal</th>
<th>Possible obstruction</th>
<th>Significant obstruction</th>
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<tr>
<td>Valve structure / motion</td>
<td>Normal</td>
<td>Often abnormal</td>
<td>Abnormal</td>
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<td>PHT (ms)</td>
<td>&lt;130</td>
<td>130-200</td>
<td>&gt;200</td>
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<td>Peak Velocity (m/s)</td>
<td>&lt;1.9</td>
<td>1.9-2.5</td>
<td>≥2.5</td>
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<tr>
<td>Mean gradient (mmHg)</td>
<td>≤5</td>
<td>6-10</td>
<td>≥10</td>
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<tr>
<td>Effective orifice area (cm²)</td>
<td>≥2</td>
<td>1-2</td>
<td>&lt;1</td>
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<tr>
<td>Doppler velocity index</td>
<td>&lt;2.2</td>
<td>2.2-2.5</td>
<td>&gt;2.5</td>
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PHT ( ms )

Remember !
Do not use PHT to calculate the area in PM valve
E velocity (m/s)
MV mean Gradient (mmHg)

MV MG < 5 mmHg

MV MG 30 mmHg
DVI Doppler Velocity Index

MV VTI 70.6 cm
LVOT VTI 9.7 cm

DVI < 2.2
DVI 7.38
EOA Effective Orifice Area (cm²)

Normal EOA > 2 cm²

EOA 0.4 cm²
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THANK YOU