Anticoagulation in patients with heart valve replacements - Guideline for primary and secondary care.
Warfarin related Guidelines

1. Perioperative anticoagulation plan heart valve INR 3.5. 2013 R Rayment 180913

2. Guidelines for the Prescription & Administration of Bridging Therapy for adult patients, receiving warfarin therapy, undergoing elective surgical procedures:
   i. **High Risk group**: Prosthetic Heart valves, Anti phospholipid syndrome, Recurrent DVT / Pulm emboli, Anti-thrombin deficiency protein C / S.
   ii. **Intermediate / Low Risk**: Atrial fibrillation

3. Pathway for Adult In-patients requiring INR monitoring on discharge
Mechanical Heart Valves

Mechanical Valve Thrombosis

Pannus In-growth
• The 1st postoperative month is a high risk period for thromboembolism and anticoagulation should not be lower than the target value.

• High variability of the INR is an independent predictor of reduced survival after valve replacement. Self-management of anticoagulation reduces variability & clinical events.

• In patients who have a sub-therapeutic INR during routine monitoring, bridging with UFW or LMWH in an outpatient setting is indicated until a therapeutic INR value is reached.
ADULT IN-PATIENT WARFARIN TREATMENT CHART

Prescribe warfarin on the in-patient chart, write: “see warfarin treatment chart”. All doses should be given between 1400 – 1800 hours. If warfarin temporarily withheld write “OMIT” on this chart.

<table>
<thead>
<tr>
<th>Duration of warfarin for specific clinical indications</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1st unprovoked proximal (above knee) DVT or PE</td>
<td>✓</td>
<td>≥ 3 months</td>
<td>2.5 (2-3)</td>
</tr>
<tr>
<td>Review by senior clinician after this time to discuss long-term anticoagulation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st proximal (above knee) DVT or PE, with provoking factors e.g. trauma, surgery.</td>
<td></td>
<td>3 months</td>
<td>2.5 (2-3)</td>
</tr>
<tr>
<td>1st distal (calf) DVT</td>
<td></td>
<td>3 months</td>
<td>2.5 (2-3)</td>
</tr>
<tr>
<td>Recurrent DVT or PE</td>
<td></td>
<td>Long-term</td>
<td>2.5 (2-3)</td>
</tr>
<tr>
<td>Recurrent DVT or PE whilst anticoagulated with therapeutic INR (2.0-3.0)</td>
<td></td>
<td>Long-term</td>
<td>3.5 (3-4)</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td></td>
<td>Long-term</td>
<td>2.5 (2-3)</td>
</tr>
<tr>
<td><strong>Prosthetic heart valve</strong> (Seek specialist advice for target INR)</td>
<td></td>
<td>Long-term</td>
<td></td>
</tr>
<tr>
<td>Pre-cardioversion</td>
<td></td>
<td>&gt; 3 weeks</td>
<td>2.5 (2-3)</td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Potential problems?** e.g. drug interactions, recent surgery

MAINTENANCE DOSING IN PATIENTS PREVIOUSLY STABILISED ON WARFARIN

Remember before prescribing warfarin.

- consider impact of patient’s current medical condition e.g. low albumin, deranged LFTs
- review patient’s hand held/computerised records for previous results, the current trend in the INR and perform a baseline INR.
- review the drug chart – has a new treatment been started or stopped e.g. antibiotics, amiodarone? Starting or stopping drugs will usually affect the INR approximately 3 days later.
- altering the dose of warfarin will affect the INR approximately 3 days later. **IF YOU ARE UNSURE WHAT TO DO, SEEK ADVICE**

<table>
<thead>
<tr>
<th>Target INR</th>
<th>Actual INR</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>1.8 to 3.2</td>
<td>Do not adjust warfarin dose. Check INR every 3-4 days</td>
</tr>
<tr>
<td>3.5</td>
<td>2.8 to 4.2</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>≥3.3 but &lt;6.0</td>
<td>Reduce dose of warfarin by 10-25%. Review preceding INR results and elicit any recent change in medication to determine the trend. If necessary monitor INR daily. Where possible avoid altering warfarin dose more frequently than every third day</td>
</tr>
<tr>
<td>3.5</td>
<td>≥4.3 but &lt;6.0</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>1.5 to 1.8</td>
<td>Increase dose of warfarin by 10-25%.</td>
</tr>
<tr>
<td>3.5</td>
<td>1.5 to 2.8</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>&lt;1.5</td>
<td>As well as increasing Warfarin, consider use of therapeutic dose of low molecular weight heparin (see BNF for special precautions) until the INR is in target range for 2 consecutive days. (for patients with prosthetic heart valves, discuss with their cardiologist/cardiac surgeon/haematologist)</td>
</tr>
</tbody>
</table>
## MANAGEMENT OF A HIGH INR

The following recommendations are adapted from those of the British Society for Haematology. If you are unsure, consult a haematologist (or cardiac surgeon if the patient has a prosthetic heart valve).

### Special Circumstances
- Reversal of warfarin for patients with prosthetic heart valves: discuss with patient’s cardiac surgeon/ cardiologist/ haematologist
- Reversal of warfarin for emergency surgery: discuss with haematologist

### INR in therapeutic range - patient bleeding.
- Investigate source of bleeding. Consider risk/benefit of stopping warfarin

### INR < 6.0 but > 0.7 above target INR - no bleeding
- Reduce the dose following the ‘Maintenance Dosing’ table above

### INR > 6 - no bleeding or minor bleeding from mucosae (nose, oropharynx, urinary tract, rectum, anus)
- Stop warfarin
- Restart appropriate dose when INR < 5.0

- **Assess patient for their risk of bleeding:** recent surgery/trauma, extensive bruising, minor mucosal bleeding
  - If at high risk of bleeding give Vitamin K 2mg orally. Use 0.2 ml Konakion® MM paediatric (phytomenadione 2mg in 0.2ml).
  - Draw up using oral dispenser provided and then drop onto the tongue
  - Recheck INR after 24 hours, repeat dose of Vitamin K if INR is still too high

### Major bleeding: Life or limb threatening bleeding, including intracranial haemorrhage
- Stop warfarin.
- Give 5mg vitamin K IV (0.5ml phytomenadione 10 mg/ml - Konakion MM®). Give as an IV bolus over 3-5 minutes undiluted or diluted with 10-20ml glucose 5% to aid slow administration
- Give prothrombin complex concentrate (PCC - Factor II, VII, IX, and X concentrate) - dose to be advised by haematologist. Administer over 10 minutes (see local protocol for further details on administration)
- Repeat INR within 1 hour of giving of PCC - consider further dose if INR remains >1.5 and patient still bleeding
- Consider risk/benefit of recommencing warfarin

## DISCHARGE
- Use your local care pathway to ensure that accurate information is shared with the out-patient clinic or GP.
- Make arrangements for the patient to have his/her INR checked within seven days of discharge.
Pathway for Adult In-patients requiring INR monitoring on discharge

Patient taking Warfarin (+/- Enoxaparin), identified as being medically fit for discharge and living in the Cardiff & Vale geographical area (if outside this area refer to local monitoring services)

Contact ward / discharge pharmacist to review required frequency of monitoring as outpatient and discuss monitoring options

INR “stable”
LMC / Health Board agreed criteria
“2 INR readings in range and confirmation that the patient can be left 7 days between dosing”.

Refer to GP monitoring service
It is the responsibility of the discharging clinician to ensure:
• Patient is medically fit for discharge
• Appointment has been made with GP
• Safe handover

INR “unstable”
(INR needs to be checked more than once a week)

Refer to Acute Response Team (ART)
Phone ex. 32669 or 07976050069
ART will refer to primary care monitoring service once the INR is “stable”.

Patient following perioperative “bridging” plan

Complete In-patient Warfarin Care Pathway, and Adult In-patient Warfarin treatment chart

Documentation which MUST be given to ALL patients on discharge:
• Copy of completed Warfarin care pathway & Patient held record book (yellow)
• Copy of Adult In-patient Warfarin treatment chart & Copy of Discharge advise letter (DAL)

Additional documentation / information which MUST be given to patients being monitored by ART on discharge:
• Completed medication chart if Enoxaparin required / Perioperative letter if relevant
• ART contact telephone number (leaflet) / Date / time and location of appointment with ART
Survey of Anuerin Bevan Primary Care

87 GP Surgeries - 32 (~ 1/3rd) responded
- 3,529 patients on warfarin
  - of these only 5% for mechanical heart valves
- 56% of surgeries monitored INR
  - 90% relied on software program – RATS / INR Star
  - Current protocols for AF – according to set range
- Action for sub-therapeutic INR
  - Only 16% would start or seek advise to initiate bridging heparin
Managing Anticoagulation Treatment
Mechanical Heart Valves

Optimal anticoagulation in patients with mechanical heart valves is achieved by using a target INR. (Differs from the current All Wales practice)

- A median target INR value rather than a range is recommended in order to avoid considering extreme values in the range as being a valid INR, since values at either end of a range are not as safe and effective as median values

Requires collaboration between Primary, Secondary & Tertiary Care
Biological (Tissue) Prosthetic Heart Valves or Valve repair

Aortic position:
No warfarin anticoagulation needed (current recommendation is only for an anti-platelet aggregatory agent, such as Aspirin, for 3 months post surgery), provided patient is in normal sinus rhythm and there is no other indication for anticoagulation.

Mitral and Tricuspid position:
Post-operative anticoagulation with Warfarin is recommended for 3 months only (Target INR 2.5), provided in normal sinus rhythm and there is no other indication for continued anticoagulation.
Mechanical (Metallic) prosthetic heart valves

All patients with mechanical heart valves require **life-long** anticoagulation with a Vitamin K antagonist, i.e. Warfarin, guided by regular monitoring of the international normalised ratio (INR) to inform dosing.

New novel oral anticoagulants (e.g. Dabigatran, Rivaroxaban, Apixaban, Edoxaban, etc) are NOT licensed and are clearly CONTRA-INDICATED for use in patients with prosthetic heart valves.
**Guidelines on the management of valvular heart disease (version 2012)**

**Table 20**  Target international normalized ratio (INR) for mechanical prostheses

<table>
<thead>
<tr>
<th>Prosthesis thrombogenicity</th>
<th>Patient-related risk factors&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No risk factor</td>
</tr>
<tr>
<td>Low</td>
<td>2.5</td>
</tr>
<tr>
<td>Medium</td>
<td>3.0</td>
</tr>
<tr>
<td>High</td>
<td>3.5</td>
</tr>
</tbody>
</table>

<sup>a</sup>Prosthesis thrombogenicity: Low = Carbomedics, Medtronic Hall, St Jude Medical, ON-X; Medium = other bileaflet valves; High = Lillehei-Kaster, Omniscience, Starr-Edwards, Bjork-Shiley and other tilting-disc valves.

<sup>b</sup>Patient-related risk factors: mitral or tricuspid valve replacement; previous thromboembolism; atrial fibrillation; mitral stenosis of any degree; left ventricular ejection fraction < 35%.
## Target INR in mechanical heart valve replacement

<table>
<thead>
<tr>
<th>Mechanical Prosthesis thrombogenicity&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Isolated Aortic Valve Replacement</th>
<th>Mitral or Tricuspid Valve Replacement, or</th>
</tr>
</thead>
<tbody>
<tr>
<td>No risk factors&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>AVR with Risk factors&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Low</td>
<td>3.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a) **Prosthesis thrombogenicity**:
Low = Carbomedics, Medtronic Hall, St Jude Medical, ON-X;
Medium = other bileaflet valves;
High = Lillehei-Kaster, Omniscience, Starr-Edwards, Bjork-Shiley and other tilting disc valves.

b) **Patient-related risk factors**:
previous thromboembolism;
atrial fibrillation;
mitral stenosis of any degree,
left ventricular ejection fraction < 35%.
Anticoagulation advice for patients with Mechanical Heart Valves

- Patient-related risk factors may change over time. Therefore the initial recommended target INR at the time of surgery may change.
- All patients with mechanical heart valves should undergo a cardiological review at least every 5 years
  - Thromboembolism despite adequate anticoagulation
    - Raise target INR
    - Addition of Aspirin
Arrangements for Target INR Defined by Surgeon

This information must reach:
- Primary Care GP
- Secondary Care Cardiologist
- Discharge Letter
- Cardiff & Vale Clinical Portal!

Available & used by DGH’S

INR Clinic

Automated Software
- Set to patient’s required target INR
- Ability to over-ride computer dosing

- Sticker in Yellow INR monitoring Book
  - Mechanical valve (aortic / mitral / tricuspid)
  - Warfarin - lifelong
  - INR Target - ___ __ __
  - Initiate LMWH treatment if INR more than 0.5 below target

(See guidelines for dosing)
Managing Sub-therapeutic Anticoagulation
(INR falls more than 0.5 below target INR)
Recheck INR same day with Point of Care Testing due to variance

Need bridging cover with Heparin.
- Intravenous unfractionated heparin (UFH) is the primary recommended treatment for patients with mechanical prosthesis.
- However, subcutaneous Low Molecular Weight Heparin (LMWH) at a ‘therapeutic dosage’, is accepted as an alternative for bridging, especially in an outpatient setting.
- LMWH is contraindicated in severe renal failure (Creatinine Clearance < 30 ml/min)
- The INR needs to be retested in 2 – 3 days, in order to guide warfarin dosage (after altering warfarin dosage, it takes ~ 48 hrs for the INR to change) until therapeutic.
Bridging cover with LMWH

- Subcutaneous LMWH - Dalteparin 100 IU/kg bd until the INR is within 0.5 of target INR.
- It is recognised that twice daily dosing may not always be possible. In these patients a once daily regimen according to the patient’s weight is suggested.

<table>
<thead>
<tr>
<th>Patient Weight</th>
<th>Recommended twice daily dose Dalteparin</th>
<th>Once daily dose Dalteparin</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;46 kg</td>
<td>100 IU/kg bd</td>
<td>7500 IU od</td>
</tr>
<tr>
<td>46-56 kg</td>
<td>100 IU/kg bd</td>
<td>10,000 IU od</td>
</tr>
<tr>
<td>57-68 kg</td>
<td>100 IU/kg bd</td>
<td>12,500 IU od</td>
</tr>
<tr>
<td>69 – 82 kg</td>
<td>100 IU/kg bd</td>
<td>15,000 IU od</td>
</tr>
<tr>
<td>&gt;83 kg</td>
<td>100 IU/kg bd</td>
<td>18,000 IU od</td>
</tr>
</tbody>
</table>

- Pre packed syringes are listed in the od regimen – it is reasonable to round up in the bd regimens, e.g. for a patient weight of 60kg, 7500 IU in am, 5000 IU in pm would be reasonable. Please contact haematology for advice if needed.

NB: (in some other local Health Boards the LMWH used is Enoxaparin; at a dose of 1.5 mg/kg daily (if target INR 2.5 or 3.0), or 1mg/kg bd (if target INR 3.5 or 4.0), and not Dalteparin)
Bridging cover with LMWH

Enoxaparin

Administered subcutaneously at a dose of:

1.5 mg/kg daily (if target INR 2.5 or 3.0)
or
1 mg/kg bd (if target INR 3.5 or 4.0)

NB: (in some other local Health Boards the LMWH used is Dalteparin, at a dose of 100 IU/kg bd or according to a dosage scale once daily, and not Enoxaparin)
### Dosing chart for Enoxaparin 1.5mg/KG OD

<table>
<thead>
<tr>
<th>Patient Weight (KG)</th>
<th>Syringe to be used</th>
<th>Dose (MG)</th>
<th>Injection Volume (ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>60mg / 0.6ml</td>
<td>60 od</td>
<td>0.60</td>
</tr>
<tr>
<td>45</td>
<td>80mg / 0.8ml</td>
<td>67.5 od</td>
<td>0.675</td>
</tr>
<tr>
<td>50</td>
<td>80mg / 0.8ml</td>
<td>75 od</td>
<td>0.75</td>
</tr>
<tr>
<td>55</td>
<td>100mg / 1ml</td>
<td>82.5 od</td>
<td>0.825</td>
</tr>
<tr>
<td>60</td>
<td>100mg / 1ml</td>
<td>90 od</td>
<td>0.90</td>
</tr>
<tr>
<td>65</td>
<td>100mg / 1ml</td>
<td>97.5 od</td>
<td>0.975</td>
</tr>
<tr>
<td>70</td>
<td>120mg / 0.8ml</td>
<td>105 od</td>
<td>0.70</td>
</tr>
<tr>
<td>75</td>
<td>120mg / 0.8ml</td>
<td>112.5 od</td>
<td>0.76</td>
</tr>
<tr>
<td>80</td>
<td>120mg / 0.8ml</td>
<td>120 od</td>
<td>0.80</td>
</tr>
<tr>
<td>85</td>
<td>150mg / 1ml</td>
<td>127.5 od</td>
<td>0.86</td>
</tr>
<tr>
<td>90</td>
<td>150mg / 1ml</td>
<td>135 od</td>
<td>0.90</td>
</tr>
<tr>
<td>95</td>
<td>150mg / 1ml</td>
<td>142.5 od</td>
<td>0.96</td>
</tr>
<tr>
<td>100</td>
<td>150mg / 1ml</td>
<td>150 od</td>
<td>1.00</td>
</tr>
<tr>
<td>&gt;105</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(see specialist advice)

### Dosing chart for Enoxaparin 1.0mg/KG BD

<table>
<thead>
<tr>
<th>Patient Weight (KG)</th>
<th>Syringe to be used</th>
<th>Dose (MG)</th>
<th>Injection Volume (ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>40mg / 0.4ml</td>
<td>40 bd</td>
<td>0.40</td>
</tr>
<tr>
<td>45</td>
<td>60mg / 0.6ml</td>
<td>45 bd</td>
<td>0.45</td>
</tr>
<tr>
<td>50</td>
<td>60mg / 0.6ml</td>
<td>50 bd</td>
<td>0.50</td>
</tr>
<tr>
<td>55</td>
<td>60mg / 0.6ml</td>
<td>55 bd</td>
<td>0.55</td>
</tr>
<tr>
<td>60</td>
<td>60mg / 0.6ml</td>
<td>60 bd</td>
<td>0.60</td>
</tr>
<tr>
<td>65</td>
<td>80mg / 0.8ml</td>
<td>65 bd</td>
<td>0.65</td>
</tr>
<tr>
<td>70</td>
<td>80mg / 0.8ml</td>
<td>70 bd</td>
<td>0.70</td>
</tr>
<tr>
<td>75</td>
<td>80mg / 0.8ml</td>
<td>75 bd</td>
<td>0.75</td>
</tr>
<tr>
<td>80</td>
<td>80mg / 0.8ml</td>
<td>80 bd</td>
<td>0.80</td>
</tr>
<tr>
<td>85</td>
<td>100mg / 1ml</td>
<td>85 bd</td>
<td>0.85</td>
</tr>
<tr>
<td>90</td>
<td>100mg / 1ml</td>
<td>90 bd</td>
<td>0.90</td>
</tr>
<tr>
<td>95</td>
<td>100mg / 1ml</td>
<td>95 bd</td>
<td>0.95</td>
</tr>
<tr>
<td>100</td>
<td>100mg / 1ml</td>
<td>100 bd</td>
<td>1.00</td>
</tr>
<tr>
<td>105</td>
<td>120mg / 1ml</td>
<td>105 bd</td>
<td>0.70</td>
</tr>
<tr>
<td>110</td>
<td>120mg / 1ml</td>
<td>110 bd</td>
<td>0.74</td>
</tr>
<tr>
<td>115</td>
<td>120mg / 1ml</td>
<td>115 bd</td>
<td>0.78</td>
</tr>
<tr>
<td>120</td>
<td>120mg / 1ml</td>
<td>120 bd</td>
<td>0.80</td>
</tr>
<tr>
<td>125</td>
<td>150mg / 1ml</td>
<td>125 bd</td>
<td>0.84</td>
</tr>
<tr>
<td>130</td>
<td>150mg / 1ml</td>
<td>130 bd</td>
<td>0.88</td>
</tr>
<tr>
<td>135</td>
<td>150mg / 1ml</td>
<td>135 bd</td>
<td>0.90</td>
</tr>
<tr>
<td>140</td>
<td>150mg / 1ml</td>
<td>140 bd</td>
<td>0.94</td>
</tr>
<tr>
<td>145</td>
<td>150mg / 1ml</td>
<td>145 bd</td>
<td>0.98</td>
</tr>
<tr>
<td>150</td>
<td>150mg / 1ml</td>
<td>150 bd</td>
<td>1.00</td>
</tr>
<tr>
<td>&gt;155</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(see specialist advice)
Managing a High INR

Life threatening bleeding:
• Admit to hospital.
• Omit Warfarin.
• Intravenous vitamin K 5mg.
• Prothrombin complex concentrate, usually 30-50 IU/kg, but dose-adjusted according to INR (under the supervision of a haematologist).

Minor bleeding from mucosa (nose, oropharynx, urinary tract, rectum, anus) and High INR:
• INR < 6.0 but > 0.7 above target INR
  – Reduce the warfarin dose & recheck INR in 1-2 days (half-life of warfarin is 36 – 42 hours)
• INR > 6
  – Omit Warfarin for 1 – 2 days & recheck INR in 1-2 days, reintroducing at a lower maintenance dose when bleeding is under control or when INR < 5.0
• Bleeding whilst in the therapeutic range is usually related to a pathological cause which needs to be identified and treated

No bleeding and High INR (INR > 6)
• Omit Warfarin for 1 – 2 days & recheck INR in 1-2 days, restart warfarin at a lower dose when INR <5.0
• Where the perceived risk of bleeding is high, e.g. INR >8, or other risk factors for bleeding are present, also consider administration of oral vitamin K (1.0 - 2.0 mg).
Patients in need of peri-procedure temporary reduction / discontinuation of anti-coagulation

- For most minor surgical, superficial, dental and ophthalmic procedures, Warfarin **should not** be stopped. Appropriate techniques of haemostasis should be used, the INR measured on the day of the procedure, and this should not be > 0.5 above the target INR.

- **Major surgical procedures require an INR of less than 1.8 depending upon bleeding risk:**
  Warfarin anticoagulant therapy should be stopped 3 – 5 days before surgery (depending on current INR) and bridging using heparin is recommended once the INR falls more than 0.5 below target INR, usually 1 – 2 days after stopping Warfarin.
Peri-procedural Bridging therapy for patients with Mechanical Prosthetic valves

• Intravenous Unfractionated Heparin remains the only recommended heparin treatment in patients with mechanical prostheses and should be favoured over subcutaneous LMWH.

– The effects of LMWH cannot be fully reversed whereas UFH can be reversed with Protamine.
If UFH is used

- Admit 2 - 3 days prior to surgery.
- Start IV UFH infusion once INR falls more than 0.5 below target, and aim for an APTT of 1.7-2.7.
- Stop UFH 4 hours before surgery.
- Restart IV heparin (no loading dose) as soon as post op bleeding risk is low (usually 6 – 8 hrs after procedure)
- **Restart Warfarin:** at the patient’s usual maintenance dose (no loading) 24 hrs after procedure.
Request from Primary Care

• Who is responsible for confirming Target INR?
  – Cardiac surgeon & Cardiology review

• INR Target not a Range needs to be explicit!

• When to give Bridging Therapy?

• Who gives Bridging Therapy?
  – Primary Care / Patient administered
  – Provision of Enoxaparin an Issue in C & V – GP’s?

• Who to ask for advice and how?
Who to ask for Advice?

Royal Gwent Hospital, Newport:
Cardiology Department: 01633-234295
Cardiology Helpline: 07580-440625
Haematology – Dr Jessica Anderson: 01633 234464

Neville Hall Hospital, Abergavenny:
Cardiology Department: 01873-732767
Cardiology Helpline: 07800-585354
Haematology – Dr Sarah Lewis: 01873 732259

University Hospital of Wales- Cardiff
Cardiology registrar on-call?
Anticoagulation Pharmacist - Via long range pager 076 2390 5674 (Mon-Friday.8.30am-5.00pm)