

# ANTICOAGULATION STEWARDSHIP: EVIDENCE OF IMPACT

Anticoagulants are essential yet high-risk medications. Anticoagulation-related errors and inappropriate use result in devastating bleeding and thrombotic events. Dedicated anticoagulation management programs have been shown to improve the quality and safety of anticoagulant use and improve clinical outcomes. (All findings presented are statistically significant).

## Inappropriate DOAC Dosing:

### Quality Gap

- **1 in 3** DOAC doses inappropriate<sup>1-3</sup>
- Under-dosing
  - ↑ risk CV hospitalization (**26%**)<sup>4</sup>
  - ↑ stroke / systemic embolism (**22%**)<sup>4</sup>
  - ↑ death (**24%**)<sup>5</sup>
  - No reduction in bleeding<sup>5</sup>
- Over-dosing
  - **2X** mortality<sup>4</sup>
  - ↑ stroke (**26%**)<sup>5</sup>
  - ↑ major bleeding (**30-100%**)<sup>5</sup>

### Stewardship Impact

- **93%** of DOAC doses appropriate in outpatients<sup>6</sup>
- **44%-58%** improvement in hospital dosing errors<sup>7,8</sup>
- **43% ↓** in major bleeding<sup>9</sup>
- **53% ↓** in death<sup>9</sup>

## Suboptimal DOAC Adherence:

### Quality Gap

- **33%** of patients on DOACs for atrial fibrillation are non-adherent resulting in a **40% ↑** rate of strokes<sup>10</sup>



### Stewardship Impact

- **91%-97%** adherence rates achieved<sup>11,12</sup>



## Inappropriate Aspirin – Anticoagulant Combination:

### Quality Gap

- **34%-50%** of patients on anticoagulant therapy use aspirin without a clear indication<sup>13,14</sup>
- Inappropriate aspirin users had
  - **2x** as many cardiac events<sup>14</sup>
  - **56% ↑** bleeding-related ED visits<sup>15</sup>
  - **70% ↑** major bleeding events<sup>16</sup>
  - No reduction in thrombosis through addition of aspirin<sup>13-17</sup>

### Stewardship Impact

- **34%-87% ↓** in inappropriate aspirin use among anticoagulated patients<sup>18,19</sup>



## Suboptimal Warfarin Control:

### Quality Gap

- TTR **>65%** needed to derive any benefit from warfarin
- Yet, **2/3** of warfarin patients have a mean TTR of only **54%**<sup>21,25</sup>
- These patients are at **3x ↑** risk for strokes and **2x ↑** risk for major bleeding<sup>21-25</sup>

### Stewardship Impact

- ↑ TTR to **70%**<sup>26</sup>
- **39% ↓** in supratherapeutic INRs<sup>27</sup>
- **31% ↓** in bleeding, thromboembolism, and mortality<sup>26,27</sup>
- **45% ↓** in hospital LOS<sup>28</sup>
- **79% ↓** in anticoagulation-related admissions<sup>28</sup>
- **\$11** net ROI for every \$1 invested<sup>28</sup>

## Bleeding Management and Utilization of Clotting Factors and Antidotes:

### Quality Gap

- Major bleeding events from anticoagulants carry a mortality rate of up to **20%** within 30 days<sup>29,30</sup>
- Reversal strategies are costly at **\$4,000 to \$50,000** per episode<sup>31</sup>
- **56%** of orders for reversal agents are inappropriate<sup>30,32</sup>

### Stewardship Impact

- **95% ↓** of inappropriate prescribing<sup>33</sup>
- **45% ↓** in blood factor administration<sup>34</sup>
- **\$4 million** annual cost savings<sup>34</sup>



## Suboptimal Management of Heparin-Induced Thrombocytopenia:

### Quality Gap

- HIT is a rare (**≤1%**) but potentially devastating disease<sup>35</sup>
- Up to **64%** of HIT patients experience thromboembolic complications requiring treatment with alternate anticoagulants<sup>35</sup>
- HIT tests are inappropriate **50%-75%** of the time<sup>31,36,37</sup>
- HIT can **↑** costs by **\$20,000** and length of stay by **16** days<sup>38</sup>

### Stewardship Impact

- **42% ↓** in suspected HIT<sup>39</sup>
- **79% ↓** in adjudicated HIT<sup>39</sup>
- **91% ↓** in HIT with thrombosis<sup>39</sup>
- **64% ↓** in inappropriate lab tests<sup>40</sup>



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