Insurance Denial ROI
Decision Memo

1. **Abstract:**

Current clinic policy dictates a universal appeal for all denied insurance claims. While this approach ("Base Case") maximizes gross revenue recognition, this analysis suggests results in operational efficiency. By modeling variances in labor inputs and success probabilities, this study identifies a significant divergence between gross recovery and net yield.

Under "Worst Case" conditions, defined as Avg. Claim value of $150, a success rate of 20%, and labor time of 45 minutes, our net ROI per appeal is approximately $6.71. In scenarios like these, we are allocating skilled labor for near-zero returns.

Recommendation: Adoption of a Triage Model, automatically filtering out claims matching the "worst case" profile, as a means to safeguard margins against operational drag.

2. **Scenario Analysis:**

   To evaluate the volatility of returns, I modeled three distinct operational conditions. The objective was to quantify the sensitivity of Net ROI to both external and internal variables

   a. Base Case (Status Quo): At an average value of $300, 40% success rate, 30 minutes of labor, the clinic generates healthy margins all around.
   b. Best Case (Optimized): With high value claims, averaging $450, at 60% success rate, processed efficiently at 15 minutes of labor, yields exceptional returns.
   c. Worst Case: Critically, when the team is bogged down by lower-value claims averaging around $150 that require extensive rework (45 minutes) and have low success rates (20%), the costs quickly rise above the returns.
      i. The Expected Recovery ($150) less Labor Costs ($22.50) less Capital Costs leaves a Net ROI of <$7.00.
      ii. Appeals falling under this scenario can waste important human capital

3. **Sensitivity Analysis:**

   While the average claim is profitable, the sensitivity analysis highlights specific breakpoints where individual claims lose money. I tested a range of claim values (from $25 to $1,000) to find this economic floor".

   a. The $50 Floor: For claims valuing at or below $50, the fixed labor costs creates an insurmountable barrier to profitability. Unless the probability of success exceeds 50%, the expected value of the appeal is roughly negative.
   b. Labor Inelasticity: In the "Worst Case" scenario, where labor is expected to take 45 minutes, the break-even threshold rises significantly. This suggests that for complex, low-value denials (<$100), the opportunity cost of staff time effectively subsidizes payer denials.
   c. For claims between $50-$100, the labor costs consume >50% of expected recovery and any operational hiccup (e.g., a 15-minute delay) can fail to generate sufficient yield to cover operational costs required from senior staff members.

Given the current situation, it is likely that the positive returns from the larger claims (>$200) are currently subsidizing the losses of the smaller claims.

4. **Proposition:**
   To rationalize the allocation of resources, it may be best to replace the universal appeal policy for a risk-adjusted protocol:

Tier	Criteria	Action	Logic
High Value	Value $\geq$ $200 OR P(Success) > 0.6	Manual Intervention	High recovery leverage justifies significant labor investment
Mid Value	Value $100 - $200	Automated Batching	Margins are sensitive to labor variance; strict time-boxing (30 min) is required to maintain profitability
Kill Zone	Value < $100 AND P(Success) < 0.3	Summary Write-Off	The projected Net ROI ($6.71) is insufficient to justify the displacement of labor

5. **Conclusion:**
   The adoption of a triage tier system for claims matching scenario values is projected to eliminate a segment of workflow that is statistically likely to yield negative returns. This reallocation of labor hours towards higher value claims is expected to improve the aggregate net yield by prioritizing margin quality over gross volume