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| ***Scenario 1:***  **Breakthrough Acid, Large Hiatal Hernia** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean Bench-mark (SD)** |
| Additional anti-reflux measures  | 7.9 (1.1) | 8 (5-9) | Appropriate (93%) | 9.0 (0.0) | 9 (9-9) | Appropriate (100%) | 95.0% (6.9) |
| Laparoscopic fundoplication  | 8.1 (0.9) | 8 (7-9) | Appropriate (100%) | 8.7 (0.6) | 9 (7-9) | Appropriate (100%) |  |
| Transoral incisionless fundoplication  | 3.3 (2.6) | 2 (1-9) | Inappropriate (71%)  | 1.6 (1.2)  | 1 (1-5) | Inappropriate (92%) |  |
| Magnetic sphincter augmentation  | 4.8 (2.7) | 5 (1-9) | Equivocal (43%) | 4.3 (1.9) | 5 (1-7) | Equivocal (54%) |  |
| Radio-frequency delivery  | 2.0 (1.9) | 1 (1-8) | Inappropriate (93%) | 1.2 (0.4) | 1 (1-2) | Inappropriate (100%) |  |

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| ***Scenario 2:***  **Breakthrough Acid, Small or No Hiatal Hernia** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** |
| Additional anti-reflux measures  | 7.9 (1.0) | 8 (6-9) | Appropriate (93%) | 8.7 (0.8) | 9 (7-9) | Appropriate (100%) |
| Laparoscopic fundoplication  | 6.9 (1.4) | 7 (4-9) | Appropriate (71%) | 7.8 (0.8) | 8 (7-9) | Appropriate (100%) |
| Transoral incisionless fundoplication  | 4.2 (2.3) | 4 (1-8) | Equivocal (43%) | 4.2 (1.8) | 4 (1-6) | Equivocal (69%) |
| Magnetic sphincter augmentation  | 6.4 (2.4) | 7.5 (1-8) | Appropriate (64%) | 6.8 (1.5) | 7 (3-9) | Appropriate (77%) |
| Radiofrequency delivery  | 2.5 (2.0)  | 2 (1-8) | Inappropriate (79%) | 2.0 (1.9) | 1 (1-8) | Inappropriate (92%) |

**Supplemental Tables. Rankings for appropriateness of each scenario according to hypothetical patient scenario in Round 2 and Round 3.**

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| ***Scenario 3:* Reflux Sensitivity, Large Hiatal Hernia, Heartburn** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** |
| Additional anti-reflux measures  | 5.5 (2.4) | 5 (2-9) | Equivocal (43%) | 6.4 (1.9) | 6 (3-9) | Equivocal & Appropriate (46% each) |
| Laparoscopic fundoplication  | 5.5 (2.4) | 6 (1-8) | Equivocal & Appropriate (43% each) | 3.5 (2.2) | 4 (1-7) | Inappropriate & Equivocal (46% each) |
| Transoral incisionless fundoplication  | 2.2 (1.4) | 2 (1-5) | Inappropriate (86%) | 1.6 (0.9) | 1 (1-4) | Inappropriate (92%) |
| Magnetic sphincter augmentation  | 3.5 (2.2) | 3.5 (1-7) | Inappropriate (50%) | 2.0 (1.7) | 1 (1-6) | Inappropriate (85%) |
| Radiofrequency delivery  | 1.7 (1.1) | 1 (1-5) | Inappropriate (93%) | 1.2 90.4) | 1 (1-2) | Inappropriate (100%) |

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| ***Scenario 4:* Reflux Sensitivity, Large Hiatal Hernia, Regurgitation** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** |
| Additional anti-reflux measures  | 5.5 (2.4) | 5 (2-9) | Equivocal (43%) | 8.2 (0.7) | 8 (7-9) | Appropriate (92%) |
| Laparoscopic fundoplication  | 5.5 (2.4) | 6 (1-8) | Equivocal & Appropriate (43% each) | 7.2 (1.2) | 7 (5-9) | Appropriate (69%) |
| Transoral incisionless fundoplication  | 2.2 (1.4) | 2 (1-5) | Inappropriate (86%) | 2.5 (1.5) | 2 (1-5) | Inappropriate (77%) |
| Magnetic sphincter augmentation  | 3.5 (2.2) | 3.5 (1-7) | Inappropriate (50%) | 3.3 (2.3) | 3 (1-7) | Inappropriate (62%) |
| Radiofrequency delivery  | 1.7 (1.1) | 1 (1-5) | Inappropriate (93%) | 1.1 (0.3) | 1 (1-2) | Inappropriate (100%) |

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| ***Scenario 5:* Reflux Sensitivity, Small or No Hiatal Hernia, Heartburn** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** |
| Additional anti-reflux measures  | 5.1 (2.7) | 5 (1-9) | Equivocal (50%) | 5.6 (2.9) | 6 (1-9) | Appropriate (38%) |
| Laparoscopic fundoplication  | 4.0 (2.3) | 4 (1-8) | Inappropriate & Equivocal (46% both) | 2.4 (1.5) | 2 (1-5) | Inappropriate (77%) |
| Transoral incisionless fundoplication  | 3.1 (1.9) | 2.5 (1-6) | Inappropriate (57%) | 1.4 (0.9) | 1 (1-4) | Inappropriate (92%) |
| Magnetic sphincter augmentation  | 3.9 (2.2) | 3.5 (1-8) | Inappropriate (50%) | 2.1 (1.8) | 1 (1-6) | Inappropriate (69%) |
| Radiofrequency delivery  | 2.3 (1.7) | 1.5 (1-6) | Inappropriate (86%) | 1.3 (0.5) | 1 (1-2) | Inappropriate (100%) |

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| ***Scenario 6:* Reflux Sensitivity, Small or No Hiatal Hernia, Regurgitation** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** |
| Additional anti-reflux measures  | 5.1 (2.7) | 5 (1-9) | Equivocal (50%) | 6.8 (2.5) | 8 (1-9) | Appropriate (54%) |
| Laparoscopic fundoplication  | 4.0 (2.3) | 4 (1-8) | Inappropriate & Equivocal (46% each) | 3.8 (2.3) | 4 (1-7) | Inappropriate & Equivocal (46% each) |
| Transoral incisionless fundoplication  | 3.1 (1.9) | 2.5 (1-6) | Inappropriate (57%) | 2.6 (2.3) | 1 (1-7) | Inappropriate (69%) |
| Magnetic sphincter augmentation  | 3.9 (2.2) | 3.5 (1-8) | Inappropriate (50%) | 2.9 (2.5) | 1 (1-8) | Inappropriate (69%) |
| Radiofrequency delivery  | 2.3 (1.7) | 1.5 (1-6) | Inappropriate (86%) | 1.5 (1.0) | 1 (1-4) | Inappropriate (92%) |

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| ***Scenario 7:* Elevated Reflux Burden, Large Hiatal Hernia** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** |
| Additional anti-reflux measures  | 4.3 (2.6) | 4.5 (1-9) | Inappropriate & Equivocal (43% both) | 6.4 (1.8) | 6.5 (4-9) | Equivocal (54%) |
| Laparoscopic fundoplication  | 4.2 (3.0) | 3 (1-9) | Inappropriate (57%) | 3.5 (1.5) | 4 (1-6) | Equivocal (54%) |
| Transoral incisionless fundoplication  | 2.0 (1.2) | 2 (1-5) | Inappropriate (93%) | 1.5 (1.0) | 1 (1-4) | Inappropriate (92%) |
| Magnetic sphincter augmentation  | 2.1 (1.2) | 2 (1-5) | Inappropriate (86%) | 1.8 (1.1) | 1 (1-4) | Inappropriate (92%) |
| Radiofrequency delivery  | 1.6 (1.0) | 1 (1-4) | Inappropriate (93%) | 1.2 (0.4) | 1 (1-2) | Inappropriate (100%) |

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| ***Scenario 8:* Elevated Reflux Burden, Small or No Hiatal Hernia** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** |
| Additional anti-reflux measures  | 3.6 (2.7) | 2.5 (1-9) | Inappropriate (64%) | 6.0 (2.1) | 6 (1-9) | Equivocal (62%) |
| Laparoscopic fundoplication  | 3.3 (2.9) | 2 (1-8) | Inappropriate (71%) | 1.8 (1.2) | 1 (1-4) | Inappropriate (85%) |
| Transoral incisionless fundoplication  | 2.0 (1.4) | 1 (1-5) | Inappropriate (79%) | 1.5 (1.0) | 1 (1-4) | Inappropriate (85%) |
| Magnetic sphincter augmentation  | 3.0 (2.1) | 2.5 (1-6) | Inappropriate (57%) | 1.9 (1.4) | 1 (1-5) | Inappropriate (85%) |
| Radiofrequency delivery  | 1.8 (1.4) | 1 (1-6) | Inappropriate (93%) | 1.2 (0.4) | 1 (1-2) | Inappropriate (92%) |

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| ***Scenario 9:* Absence of breakthrough acid, reflux hypersensitivity or elevated reflux burden** |
|  | **Round 2** | **Round 3** |
|  | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean (SD)** | **Median (Range)** | **Highest Agreement** | **Mean Benchmark (SD)** |
| Additional anti-reflux measures  | 1.1 (0.4) | 1 (1-2) | Inappropriate (100%) | 1.2 (0.4) | 1 (1-2) | Inappropriate (100%) | 97.5% (1.9) |