Novel Method to Link Surgical Trainee Performance Data to Patient Outcomes

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**Background**

- Significant training gaps exist for general surgery residents entering independent practice
- Truest barometer of surgical trainee competence is patient outcomes of those trainees after they graduate and become independent surgeons
- Relationship between trainee performance and early career surgeon outcomes is difficult to study, as these data are managed separately
- Analyzing evolving performance of trainees as they become early career surgeons requires data to be linked from multiple sources
- No standardized method to accomplish these data linkages have been described

**Methods: Framework for Big Data Linkage**

1. **Step 1:** Define Study Population
2. **Step 2:** Identify Data Sources
3. **Step 3:** Clean Datasets
4. **Step 4:** Define Cohorts
5. **Step 5:** Link Datasets
6. **Step 6:** Refine Cohorts

**Example: Linking American Board of Surgery Records to Medicare Patient Claims**

**Trainees**
- Non-fellowship trained general surgeons within 5 years of graduation from residency

**Patients**
- Adult patients undergoing common general surgeries

**Clean Data**
- 38% improvement in ABS records with complete NPI data when supplemented with additional data resources

**Link Data**
- 96% linkage rate between Medicare claims and ABS records

**Refine Cohorts**
- 9.5% procedures in linked data performed by early career general surgeons

**Aims**

1. Describe our approach to link multiple national datasets
2. Provide an example linking surgical trainee performance to early career surgeon outcomes

**Takeaways**

- **Research**
  - Enable investigation of relationship between trainee performance and patient outcomes
- **Policy**
  - Unlock opportunity to achieve the highest levels of evidence in GME policy reform

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