Aim: Estimate, identify and classify the pre-analytical error rate in the bacteriology specimen reception section of the laboratory

Background:
- 60-70% of medical decisions are based on results of laboratory tests
- Errors in laboratory results can contribute to diagnostic error
- Laboratory testing can be considered in three phases:
  - Pre-analytical, analytical and post-analytical
  - Corresponding error rates are estimated at, respectively, 46-68%, 7-13% and 18-47%

Examples of pre-analytical errors include the following:
- Incorrect specimen type, insufficient specimen volume, incorrect identification of the specimen, degradation of specimen due to handling and transport, loss of the specimen, failure to initiate the requested test
- “pre-pre-analytical” errors – doctors ordering the wrong test

Project Plan:
- June, retrospective review of bacteriology worksheets to identify errors and calculate rates; cover January to April 2016
- July, data analysis and develop intervention
- August, implement intervention
- December, retrospective review of worksheets to identify errors and calculate rates; cover August to November

SMART checklist:
- Specific: yes
- Measurable: yes
- Achievable: yes
- Realistic: yes
- Time-based: yes

Interventions:
- Present data to staff
- Education
- Ensure staff are trained and assessed for competence
- Re-arrange the set-up area (not done)

Project Impact and Deliverables:
- Estimate the pre-analytical error rate in the bacteriology specimen reception section in this laboratory
- Identify and classify the error types
- Develop an intervention to reduce these errors
- Implementation of the intervention
- Assess the impact on the error rate

Initial Data Collection:
- Prospective collection of bacteriology set-up errors, mid-July to mid-August, Monday to Friday
- 6100 specimens
- 21 specimens had a mistake (0.34%, 150 mins):
  - Plate omitted, 10
  - Microscopy (cell count) omitted, 1
  - Problems with set-up (not incubated 9 in one batch, contamination), 10

Post-intervention Data Collection:
- Prospective collection of bacteriology set-up errors, mid-November to mid-December, Monday to Friday
- 5500 specimens
- 13 specimens had a mistake (0.24%, 140 mins):
  - Plate omitted, 6
  - Microscopy (Gram stain and wet film) omitted, 1
  - Problems with set-up (wrong incubator, contamination), 2
  - Ordering errors, 3
  - Lost specimen (for mycobacteria), 1

Comments and Outcomes:
- First time we have data on pre-analytical errors
- First time we have data on time taken to correct
- Unclear if the interventions made any difference (probably not)
- Need to physically re-organise the set-up space
- Ongoing data collection