

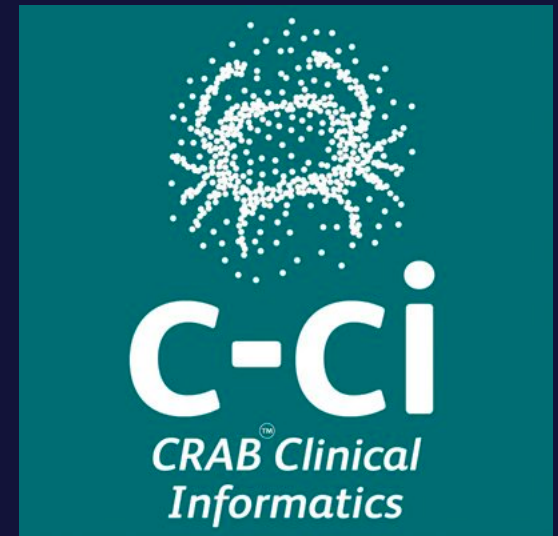
UKRETS – A Validation Study with CRAB-COMPASS and HES Databases

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Copeland's Risk Adjusted Barometer (CRAB) database

COMPASS – informatics application

- Predicts individual complications and mortality
- Database - 14 million procedures
- 36 countries
- Quotes complication risk
- Data entry validated
- Sensitivity 95.4% and Specificity 99.9% based on auditing ICD10 codes



Aims

- Compare outcomes based on CRAB - COMPASS and HES (validated) to UKRETS (non-validated)
- Define whether existing data provides an accurate estimate of thyroidectomy complications

Method

- Thyroidectomy data extracted from a single centre – Imperial College Healthcare NHS Trust
- Data Comparison Analysis
 - CRAB-COMPASS (36 countries)
 - HES (England)
 - UKRETS – Imperial Surgeons (own data)
 - BAETS Audit Report
- Primary Outcome Measures
 - Bleeding
 - Hypocalcaemia
 - Vocal cord palsy
 - Infection

Results I

| Complication % | CRAB (Imperial) | UKRETS (Imperial) | CRAB-COMPASS All | HES All | BAETS 5 th Audit All |
|-------------------------|------------------------|------------------------|-------------------|-------------------|--------------------------------------|
| All cause | 3.02 | <i>Unrecorded</i> | 7.3 | <i>Unrecorded</i> | <i>Unrecorded</i> |
| Haemorrhage | 1.51 (0.1% missing) | 0.4 (0% missing) | 2.6 | <i>Unrecorded</i> | 1.10 (7.2% missing) p = 0.5212 |
| Vocal cord palsy | | | 1 | | |
| <i>Temporary</i> | 4.3 (40% missing) | 5.6 (15.6% missing) | <i>Unrecorded</i> | <i>Unknown</i> | <i>Unknown</i> |
| <i>Permanent</i> | 2.2 (40% missing) | 1.5 (10.5% missing) | | | 1.0 (60% missing) |
| Voice change | 7.53 (9% missing) | 7.7 (3.5% missing) | <i>Unrecorded</i> | <i>Unrecorded</i> | 6.7 (16% missing) |

Results II

| Complication % | CRAB (Imperial) | UKRETS (Imperial) | CRAB-COMPASS All | HES All | BAETS 5 th Audit All |
|----------------------|----------------------|----------------------|-------------------|-------------------|---|
| Hypocalcaemia | | | 3 | 2 | |
| <i>Temporary</i> | 4.3 (1% missing) | 13.3 (0% missing) | <i>Unrecorded</i> | <i>Unrecorded</i> | 10.2 (7.7% missing) <i>P = 0.0446</i> |
| <i>Permanent</i> | 2.2 (1% missing) | 1.5 (5% missing) | | | 3.6 (19% missing) |
| Wound | 2.15 (1% missing) | <i>Unknown</i> | 1.7 | <i>Unrecorded</i> | 0.5 |

UKRETS (Imperial) – Thyroid surgery Vocal cord check

| Surgeon | n | Pre-op Check <i>p = 0.0001*</i> | % | Post-op Check | | |
|---------|------------|--|----------------------------------|---|-----------------------------------|-----------------------------------|
| | | | | All <i>p = 0.4934*</i> | % of n | % of pre-op <i>p = 0.4908*</i> |
| N.T | 203 | 172 - 31 not done - 0 unspecified | 84.7% - 15.3% - 0% | 170 - 21 not done - 12 unspecified | 83.7% - 10.3% - 5.9% | 91.9% - 4.1% - 4.0% |
| F.P | 136 | 131 - 3 not done - 2 unspecified | 96.3% - 2.2% - 1.5% | 116 - 19 not done - 1 unspecified | 85.3% - 14.0% - 0.7% | 86.3% - 13.0% - 0.7% |

| Surgeon | Pre-op check not done | Abnormal cord post op |
|---------|-----------------------|-----------------------|
| N.T | 31 | 1 |
| F.P | 3 | 0 |

Results III

Thyroidectomy – Stridor and Mortality

| | CRAB (Imperial) | UKRETS (Imperial) | CRAB- COMPASS (All) | HES (All) | BAETS (All) |
|---------------------------------|--------------------|----------------------|------------------------|--------------------|-------------|
| Stridor | 0 | 0 | <u>0.4%</u> | Unknown | Unknown |
| In-patient mortality | 0 | 0 | | 1:956 | 1:1000 |
| Overall mortality | 0 | 0 | 1:167 | 1:334 (30 days) | Unknown |

Estimated tracheostomy rate 1:500

Deduced palsy rate
6.25%

Conclusions

- The deduced cord palsy rate is 6.25%
- Big data analysis reveals that the mortality of thyroidectomy is higher than that quoted
- Shows the strength of database analysis
- UKRETS has strengths and weaknesses compared to large data bases
- Reveals a need for:
 - Validation
 - Higher surgeon engagement
 - Determination to eliminate missing data