# Inter-surgeon variability in metabolic and bariatric surgery in the Netherlands: a multi-level analysis

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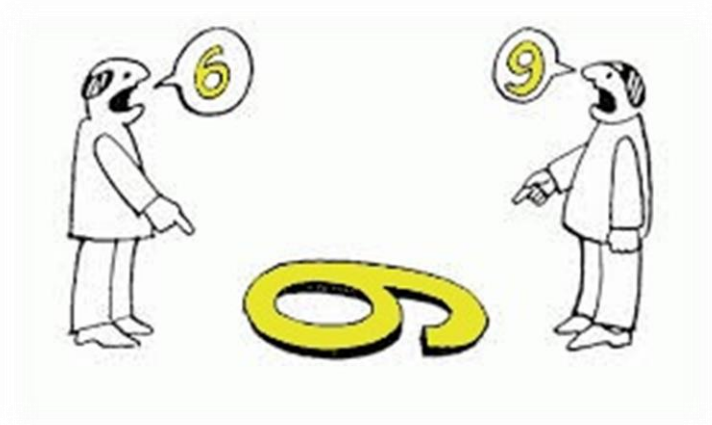
**No conflicts of interest**



# What influences successful outcome?

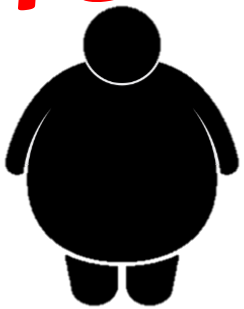
Smoking

Socioeconomic status

Comorbidities

Patient-related

Sex

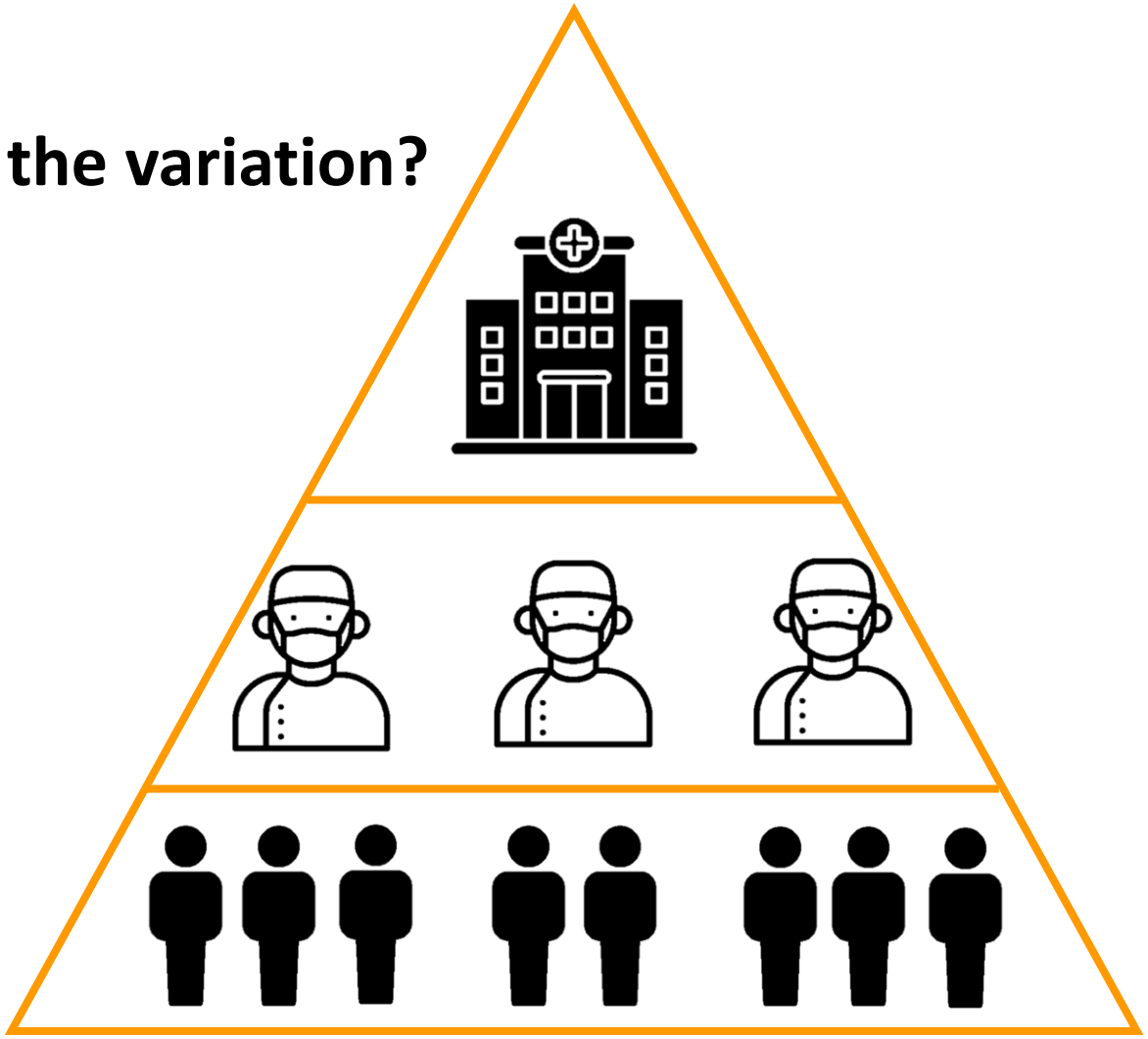


BMI

Age

# Aim

- **Where originates the largest part of the variation?**
  - **Hospital-level**
  - **Surgeon-level**
  - **Patient-level**



# Outcomes of interest

- **Severe postoperative complications (Clavien-Dindo ≥ 3)**
- **Reoperation < 30 days**
- **Prolonged length of hospitalization ( ≥ 3 days)**
- **Readmission < 30 days**
- **Textbook outcome**

  (no postoperative complications, no readmission and no prolonged length of stay)

# Patient selection

- **Dutch Audit for Treatment of Obesity (DATO)**

- **Inclusion criteria:**
  - **Primary surgery between 2020-2023**

- **Exclusion criteria:**
  - **any missings on baseline characteristics**
    (i.e., age, sex, BMI, comorbidities, Charlson comorbidity index, and ASA-score)

# Methods

1. Identify relevant patient characteristics influencing the outcome
2. Create a multilevel model including hospital and surgeon as higher levels, and include the relevant patient characteristics
3. The variance for each of the 3 levels can be determined
4. The proportion of the variance ascribed to each level was calculated
5. The intraclass correlation coefficient (ICC) was determined for the higher levels (i.e., surgeon and hospital)

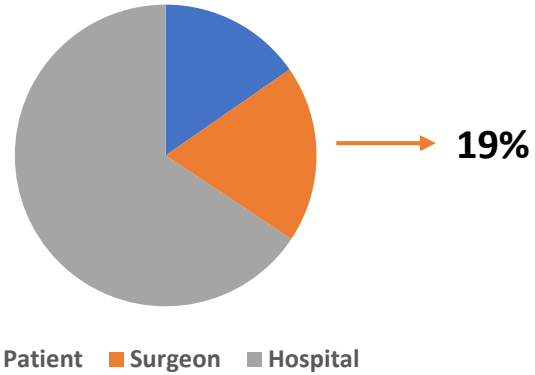
# Results

> In total, **30,576 patients** were included

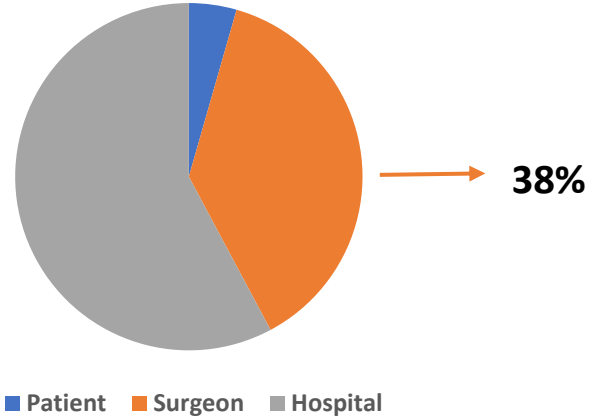
> Operated by **95 surgeons** from **19 different hospitals**

# Results (~30,000 patients included)

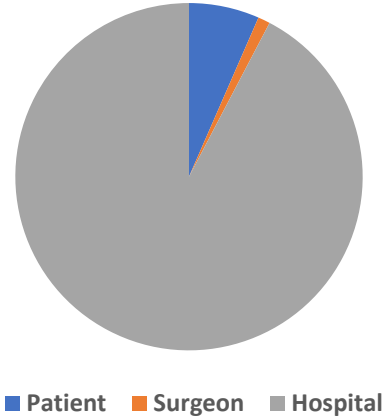
Severe postoperative complications (CD3+)



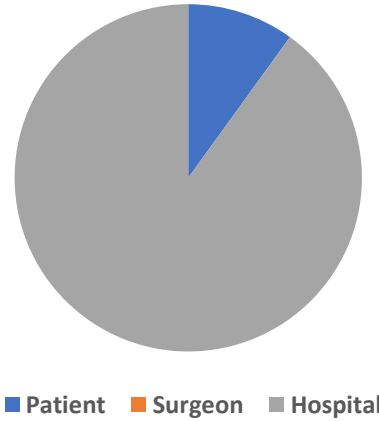

Reoperation < 30 days



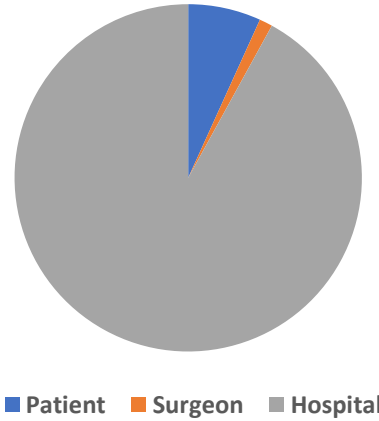

Prolonged LOS (> 2d)




Readmission < 30d




Textbook Outcome



# Results

- **Severe postoperative complications**:
  - ICC surgeon 0,7%
  - ICC hospital 2,4%

- **Reoperation**:
  - ICC surgeon 1,9%
  - ICC hospital 3,0%

- **Prolonged LOS**:
  - ICC surgeon 0,2%
  - ICC hospital 13,8%

- **Readmission < 30 days**:
  - ICC surgeon 0,0%
  - ICC hospital 6,6%

- **Textbook Outcome**:
  - ICC surgeon 0,1%
  - ICC hospital 6,7%

# Discussion

**Conclusion:**

- Surgeon-related factors play some role in adverse events
- Hospital-related factors play a larger role
- Peri-operative care influences outcomes more than the surgeon's surgical skill

**Discussion:**

- Dutch MBS care is centralized
- Criteria for hospitals to perform MBS:
  - ≥ 200 annual procedures
  - ≥ 2 dedicated bariatric surgeons

→ Results could be different in other healthcare systems

**Acknowledgements**

The authors thank all surgeons, registrars, physician assistants and administrative nurses who registered patients in the DATO.

This manuscript was written on behalf of the **Dutch Audit for Treatment of Obesity (DATO) Research Group**: G.J.D. van Acker, MD, PhD (Nederlandse Obesitas Kliniek, Zeist); J. Apers, MD (Franciscus Gasthuis & Vlietland, Rotterdam); S.C. Bruin, MD, PhD (Spaarne Gasthuis, Haarlem); F.F.E. Bruinsma, MD (DATO); S.M.M. de Castro, MD, PhD (OLVG Hospital, Amsterdam); S.L. Damen, MD (Medical Centre Leeuwarden, Leeuwarden); I.F. Faneyte, MD, PhD (ZGT Hospital, Almelo & Hengelo); J.W.M. Greve, MD PhD, Dutch Obesity Clinic South, Heerlen); G. van 't Hof, MD (Dutch Bariatric Centre South-West, Bergen op Zoom); F.H.W. Jonker, MD, PhD (Red Cross Hospital, Beverwijk); R.A. Klaassen, MD (Maasstad Hospital, Rotterdam); E.A.G.L. Lagae, MD, PhD (ZorgSaam Zorggroep Zeeuws-Vlaanderen, Terneuzen); B.S. Langenhoff, MD, PhD (ETZ Hospital, Tilburg); R.S.L. Liem, MD (Groene Hart Hospital & Nederlandse Obesitas Kliniek West, Gouda & The Hague); A.A.P.M. Luijten, MD, PhD (Máxima Medical Centre, Eindhoven); S.W. Nienhuijs, MD, PhD (Catharina Hospital, Eindhoven); R.M. Smeenk, MD, PhD (Albert Schweitzer Hospital, Dordrecht); S.J.M. Smeets, MD, PhD (Flevo Hospital, Almere); W. Vening, MD, PhD (Rijnstate Hospital, Arnhem); M. Takkenberg, MD (St. Antonius Hospital, Utrecht); E. de Witte, MD (Zuyderland Medical Centre, Heerlen)

# Thank you

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