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## **Aanvraag gegevens ten behoeve van wetenschappelijk onderzoek DUCA201619**

### **Datum**

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### **Titel onderzoek**

Alternative methods displaying variation in performance for different hospitals using funnel plots.

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### **Beschrijving onderzoek**

Deze onderzoeksaanvraag is gerelateerd aan hoofdstuk 2 van DUCA jaarrapportage van 2014. Daarnaast betreft het een onderwerp waar binnen DICA al geruime tijd onderzoek naar wordt gedaan.

### **Achtergrond van onderzoek en onderzoeksaanvraag:**

Insight in the quality of care has become increasingly important in today's healthcare system. Clinical auditing and other related quality improvement initiatives have been widely used in Western countries to measure and benchmark the quality of care delivered by individual hospitals [1-3] [4] [5].

In order to display such variation in hospital performance, a widely used graphical aid is the so-called funnel plot [6]. This plot shows the outcome of interest (vertical axis) per hospital using 95.0 per cent or 99.8 per cent control limits that vary in relation to hospital volume (horizontal axis). These control limits indicate the ranges within which 95.0 per cent (representing a difference of two standard deviations from the national rate) or 99.8 per cent (representing a difference of three standard deviations) of all participating hospitals would be expected to fall if variation was due only to sampling error or natural variation. Those



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hospitals that fall outside this expected range can be identified as potential outliers and could be subject for in-depth investigation.

Identifying such outliers becomes a challenge in clinical audits or other quality initiatives evaluating high complex and low volume surgery, like resections for oesophageal and gastric cancer monitored in the Dutch Upper gastrointestinal Cancer Audit (DUCA). Despite current volume standards, this type of surgery is often performed infrequently at the vast majority of hospitals, and annual hospital volumes vary considerably between hospitals [5]. Hospitals with low annual volumes lack statistical certainty reflected in wide control limits shown in a funnel plot [7].

Therefore, the aim of this study was to describe and evaluate different statistical approaches using a funnel plots that can be used for displaying variation in performance for different hospitals within the context of clinical auditing.

#### **Beoogde publicatie(s)**

Alternative methods displaying variation in performance for different hospitals using funnel plots.