

# Obstetric Emergency Triage

A new mindset in obstetric emergency care in Sweden

Akademisk avhandling

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## Avhandlingen baseras på följande delarbeten

- I. Lindroos L, Korsoski R, Ohman MO, Elden H, Karlsson O, Sengpiel V. *Improving assessment of acute obstetric patients - introducing a Swedish obstetric triage system*. BMC Health Serv Res. 2021;21(1):1207.
- II. Lindroos L, Elden H, Karlsson O, Sengpiel V. *An interrater reliability study on the Gothenburg obstetric triage system- a new obstetric triage system*. BMC Pregnancy Childbirth. 2021;21(1):668.
- III. Lindroos L, Sengpiel V, Elden H. *A new mindset in Swedish obstetric emergency care – a qualitative study describing midwives, auxiliary nurses and obstetricians’ experiences of working with obstetric emergency triage*. Under review
- IV. Lindroos L, Ernstad E, Sengpiel V. *Validating obstetric triage systems – what are we really measuring? A modified Delphi process introducing outcome measures for obstetric triage systems*. Submitted for publication
- V. Lindroos L, Ernstad E, Nilsson S, Sengpiel V. *Validation of the Gothenburg Obstetric Triage System (GOTS)*. Submitted for publication

**SAHLGRENKA AKADEMIN**  
**INSTITUTIONEN FÖR KLINISKA VETENSKAPER**



# Obstetric Emergency Triage

A new mindset in obstetric emergency care in Sweden

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## Abstract

**Introduction** Obstetric emergency triage, facilitating prioritization according to urgency of obstetric patients seeking emergency care, is a relatively new form of triage. Adaptations to physiological changes during pregnancy and pregnancy specific conditions enable assessment of the patient, fetus, and labor status, essential to achieve equality in emergency care for the obstetric patient. Introducing obstetric emergency triage constitutes a profound alteration in management that may challenge preconceived notions on how to provide best care. Further, implementation of obstetric emergency care must be supported by a reliable and valid triage system. With triage being contextual and lacking a definition of true urgency in triage, validation of triage systems is challenging.

**Aim** The overall aim of this thesis is to reduce maternal mortality and morbidity by introducing a new working method within obstetric emergency care.

**Methods** *Paper I* presents the development and implementation of the Gothenburg obstetric triage system (GOTS), including a literature review on obstetric triage. In *paper II*, 13 registered nurses and midwives rated 30 paper-case scenarios, assessing interrater reliability by the intraclass coefficient. In *paper III*, 13 in-depth interviews with obstetric staff underwent inductive qualitative content analysis according to Graneheim and Lundman. *Paper IV* and *V* assessed the validity of GOTS by developing a set of construct outcome measures in a consensus based, modified Delphi-process followed by consecutive medical chart reviews of 1280 patient visits at an obstetric emergency department. Dichotomized triage levels enabled sensitivity and specificity calculations.

**Results** I) GOTS was developed as a five-level triage system based on pregnancy-adapted vital signs and chief complaints. II) GOTS has a good interrater reliability when used by non-obstetric and obstetric staff. III) Staff experiences that triage facilitates prioritization of patients according to level of acuity, directs attention towards aberrations, and promotes reflection and action, enhancing teamwork by improved communication. IV and V) Acknowledging the challenges in validating triage systems, GOTS has a good contextual validity, assessed by using a set of 31 weighted outcome measures reflecting urgency at the time of triage, with a sensitivity and specificity of 0.62 (CI 0.50 – 0.73) and 0.98 (CI 0.97 – 0.99), respectively. A two-phased validation process is suggested for validating triage systems.

**Conclusion** GOTS is the first OTS developed for, implemented in and validated in a Swedish context. Obstetric triage based on e.g. GOTS should be introduced into Swedish obstetric emergency care.

**Keywords** Acuity, Delphi method, Emergency medicine, Experiences, Implementation, Obstetrics, Patient safety, Quality improvement, Qualitative research, Reliability, Triage, Validity, Working conditions

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