Risk of recurrence and subsequent delivery after Obstetric Anal Sphincter Injuries
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Background
Obstetric anal sphincter injuries (OASIS) occur in 1-10% of vaginal deliveries and can result in serious complications such as urinary- and fecal incontinence. Previous studies have reported that OASIS recur in subsequent births, but not consistently and quality of life after OASIS in terms of subsequent delivery rate and mode of delivery has not been properly addressed.

Material and methods
- All births of a mother were linked by the national identification number, providing sibship files with the mother as the unit of analysis.
- 828,864 mothers giving birth to singleton, vertex presenting infants weighing 500 g or more were included.
- When recurrence rate in second and third delivery and risk factors of recurrence of OASIS in second delivery were calculated, caesarean deliveries were excluded.
- When subsequent delivery rates were calculated, only mothers with caesarean deliveries in previous births were excluded.
- Each woman was observed until the end of the observation period (31. December 2004).

Main results
- Instrumental deliveries, in particular forceps deliveries, birth weight 3,500 g or more and large maternity units were associated with recurrence of OASIS.
- Instrumental delivery did not further increase the excess recurrence risk associated with high birth weight.
- The subsequent delivery rate was not different in women with and without previous OASIS, whereas women with previous OASIS were more often scheduled to caesarean delivery.

Risk of OASIS in first to third vaginal delivery, by outcome of OASIS in previous deliveries, Norway 1967-2004

Subsequent delivery after first vaginal delivery with or without OASIS, total and planned caesarean in second delivery, Norway 1967-2004

<table>
<thead>
<tr>
<th></th>
<th>First delivery</th>
<th>Second delivery</th>
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<tbody>
<tr>
<td></td>
<td>Total numbers of women with first vaginal delivery</td>
<td>Total numbers of women with second vaginal delivery</td>
</tr>
<tr>
<td></td>
<td>No (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td>No OASIS</td>
<td>734,245 (100)</td>
<td>564,826 (76.9)</td>
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<td>Reference</td>
<td>Reference</td>
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<tr>
<td>OASIS</td>
<td>21,676 (100)</td>
<td>14,461 (66.7)</td>
</tr>
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<td></td>
<td>1.0 (1.0-1.0)</td>
<td>3.0 (2.8-3.3)</td>
</tr>
</tbody>
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CI: Confidence interval, OR: Odds ratio
Hazard ratio and OR are adjusted for infant death within one year, year of delivery, instrumental delivery, maternal age, maternal marital status and maternal level of education in the first delivery.
* Numbers of second deliveries after 1988 without and with OASIS (denominators) were 271,512 and 11,065, respectively.

Conclusions
- Recurrence risks in second and third deliveries were high.
- High birth weight was the most important risk factor for the recurrence of OASIS and this excess risk was not further increased by instrumental delivery.
- A history of OASIS had little or no impact on the rates of subsequent deliveries. However, women with previous OASIS were delivered more frequently by planned caesarean delivery.
- Emphasis should be placed on counselling women after an initial OASIS and attention should be paid to prevent OASIS in the first delivery.