# Gastronet Colonoscopy
# Centre identifiable results
# January – December 2014

Geir Hoff

2014-results file

10.03.2015

This PP-series shows results from data reported to Gastronet January – December 2014, from clinical routine and screening centres in Norway and Sweden. Poland has not reported in 2014, but they are close collaborators on developing Gastronet for continental Europe. As we have done in previous years, we therefore stick to English language also in this round.

According to regulations from the Norwegian Ministry of Health, centre-specified quality assurance results from clinical centres should be made accessible for the public to reflect the quality of services provided per centre – of course restricted to Norwegian centres.

From Gastronet, centre-specific results were published first time in September 2014 for first half-year of 2014 - in full agreement with all endoscopy centres involved. The present file is an update of these published results, but it is more comprehensive and intended as a tool for local quality assurance work within Gastronet centres – accessible only for Gastronet doctors and nurses. Also, some new centres are included since the published half-year report.

For each PP-slide in this series covering January – December 2014, there is a comment as to which contents are suggested to be made public. By enlarge, we only intend to make an update of the previously published file from first half-year of 2014 to satisfy Norwegian authorities. The main purpose of Gastronet is still to provide

tools for internal quality assurance and improvement. Please, give us feedback on whether you agree with the suggested publishing or not, and any changes you may suggest.
**Please, provide your comments by 1 May 2015 by direct contact with Geir Hoff (hofg@online.no) or phone 91866762.**

A Norwegian version of selected parts of the present file will then be circulated in Gastronet shortly before making it accesible for the public.

## Colonoscopies reported to Gastronet January – Dec 2014. All centres

| Form versions 18-29 | 18 | 19 | 23 | 27 | 28 | 29 | Total |
|---|---|---|---|---|---|---|---|
| Skien | 0 | 0 | 0 | 0 | 297 | 722 | 1019 |
| Tønsberg | 0 | 0 | 0 | 0 | 1309 | 0 | 1309 |
| Kr.sand | 0 | 0 | 0 | 0 | 1201 | 0 | 1201 |
| Arendal | 0 | 0 | 0 | 0 | 1054 | 0 | 1054 |
| Notodden | 0 | 0 | 0 | 0 | 19 | 529 | 548 |
| Larvik | 0 | 0 | 0 | 0 | 564 | 0 | 564 |
| OUS Rh | 0 | 0 | 0 | 0 | 141 | 0 | 141 |
| Flekkefj. | 0 | 0 | 0 | 0 | 233 | 0 | 233 |
| Fr.stad | 0 | 0 | 0 | 0 | 1041 | 0 | 1041 |
| Kongsberg | 0 | 0 | 0 | 0 | 481 | 0 | 481 |
| Moss | 0 | 0 | 0 | 0 | 641 | 0 | 641 |
| Kragerø | 0 | 0 | 0 | 0 | 1017 | 0 | 1017 |
| Stavanger | 0 | 0 | 0 | 0 | 652 | 0 | 652 |
| Bærum | 0 | 0 | 0 | 0 | 1021 | 0 | 1021 |
| Molde | 0 | 0 | 0 | 0 | 854 | 0 | 854 |
| Volda | 0 | 0 | 0 | 0 | 197 | 0 | 197 |
| Diakonhj. | 0 | 0 | 0 | 0 | 900 | 0 | 900 |
| Kr.sund | 1 | 0 | 0 | 0 | 664 | 0 | 665 |
| Elverum | 0 | 13 | 0 | 0 | 52 | 0 | 65 |
| Drammen | 0 | 0 | 0 | 0 | 126 | 0 | 126 |
| Harstad | 0 | 0 | 0 | 0 | 562 | 0 | 562 |
| Namsos | 0 | 0 | 0 | 0 | 149 | 0 | 149 |
| Stord | 0 | 0 | 0 | 0 | 115 | 0 | 115 |
| DD-Klin.Sandnes | 0 | 0 | 0 | 0 | 698 | 0 | 698 |
| Aleris Helse | 0 | 0 | 0 | 0 | 170 | 0 | 170 |
| | | | | | | | |
| Eskilstuna | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| Uppsala | 0 | 0 | 797 | 0 | 0 | 0 | 797 |
| Västerås | 0 | 0 | 26 | 0 | 0 | 0 | 26 |
| | | | | | | | |
| CRC scr Moss | 0 | 0 | 0 | 0 | 850 | 0 | 850 |
| CRC scr Bærum | 0 | 96 | 0 | 5 | 566 | 0 | 667 |
| NordICC Kr.sand | 0 | 0 | 0 | 0 | 277 | 0 | 277 |
| NordICC Arendal | 0 | 0 | 0 | 0 | 493 | 0 | 493 |
| NordICC Västerås | 0 | 0 | 10 | 0 | 0 | 0 | 10 |
| **Total** | **1** | **109** | **836** | **5** | **16344** | **1251** | **18546** |

This slide shows that the most updated Gastronet form version 28 has been used by most Norwegian centres. Version 23 is the most updated Swedish version, which now may be considered due for further updates.

There is no point presenting results for centres having reported very few colonoscopies. Cut-off for further analyses has been arbitrarily set at 100 examinations reported per centre. The next PP-slides are restricted to these 18,442 colonoscopies reported from 29 centres. Of these, Uppsala remains the only Swedish centre with more than 100 colonoscopies reported in 2014.

**Should we publish the information in this slide openly according to the Norwegian Health Ministry request?**
**Suggestion: Yes. Information on number of colonoscopies per Norwegian centre is already out on the web for first half-year 2014. We only publish an update of what is already out. Restricted to Norwegian centres.**

## Colonoscopies reported to Gastronet January – Dec 2014
## Only centres with ≥100 cases reported (form versions 18-29)

| Form version 18-29 | 18 | 19 | 23 | 27 | 28 | 29 | Total |
|---|---|---|---|---|---|---|---|
| Skien | 0 | 0 | 0 | 0 | 297 | 722 | 1019 |
| Tønsberg | 0 | 0 | 0 | 0 | 1309 | 0 | 1309 |
| Kr.sand | 0 | 0 | 0 | 0 | 1201 | 0 | 1201 |
| Arendal | 0 | 0 | 0 | 0 | 1054 | 0 | 1054 |
| Notodden | 0 | 0 | 0 | 0 | 19 | 529 | 548 |
| Larvik | 0 | 0 | 0 | 0 | 564 | 0 | 564 |
| OUS Rh | 0 | 0 | 0 | 0 | 141 | 0 | 141 |
| Flekkefj. | 0 | 0 | 0 | 0 | 233 | 0 | 233 |
| Fr.stad | 0 | 0 | 0 | 0 | 1041 | 0 | 1041 |
| Kongsberg | 0 | 0 | 0 | 0 | 481 | 0 | 481 |
| Moss | 0 | 0 | 0 | 0 | 641 | 0 | 641 |
| Kragerø | 0 | 0 | 0 | 0 | 1017 | 0 | 1017 |
| Stavanger | 0 | 0 | 0 | 0 | 652 | 0 | 652 |
| Bærum | 0 | 0 | 0 | 0 | 1021 | 0 | 1021 |
| Molde | 0 | 0 | 0 | 0 | 854 | 0 | 854 |
| Volda | 0 | 0 | 0 | 0 | 197 | 0 | 197 |
| Diakonhj. | 0 | 0 | 0 | 0 | 900 | 0 | 900 |
| Kr.sund | 1 | 0 | 0 | 0 | 664 | 0 | 665 |
| Drammen | 0 | 0 | 0 | 0 | 126 | 0 | 126 |
| Harstad | 0 | 0 | 0 | 0 | 562 | 0 | 562 |
| Namsos | 0 | 0 | 0 | 0 | 149 | 0 | 149 |
| Stord | 0 | 0 | 0 | 0 | 115 | 0 | 115 |
| DD-Klin.Sandnes | 0 | 0 | 0 | 0 | 698 | 0 | 698 |
| Aleris Helse | 0 | 0 | 0 | 0 | 170 | 0 | 170 |
| | | | | | | | |
| Uppsala | 0 | 0 | 797 | 0 | 0 | 0 | 797 |
| | | | | | | | |
| CRC scr Moss | 0 | 0 | 0 | 0 | 850 | 0 | 850 |
| CRC scr Bærum | 0 | 96 | 0 | 5 | 566 | 0 | 667 |
| NordICC Kr.sand | 0 | 0 | 0 | 0 | 277 | 0 | 277 |
| NordICC Arendal | 0 | 0 | 0 | 0 | 493 | 0 | 493 |
| **Total** | **1** | **96** | **797** | **5** | **16292** | **1251** | **18442** |

This shows only centres having reported more than 100 colonoscopies in 2014. These comprise the contents in the next few slides.

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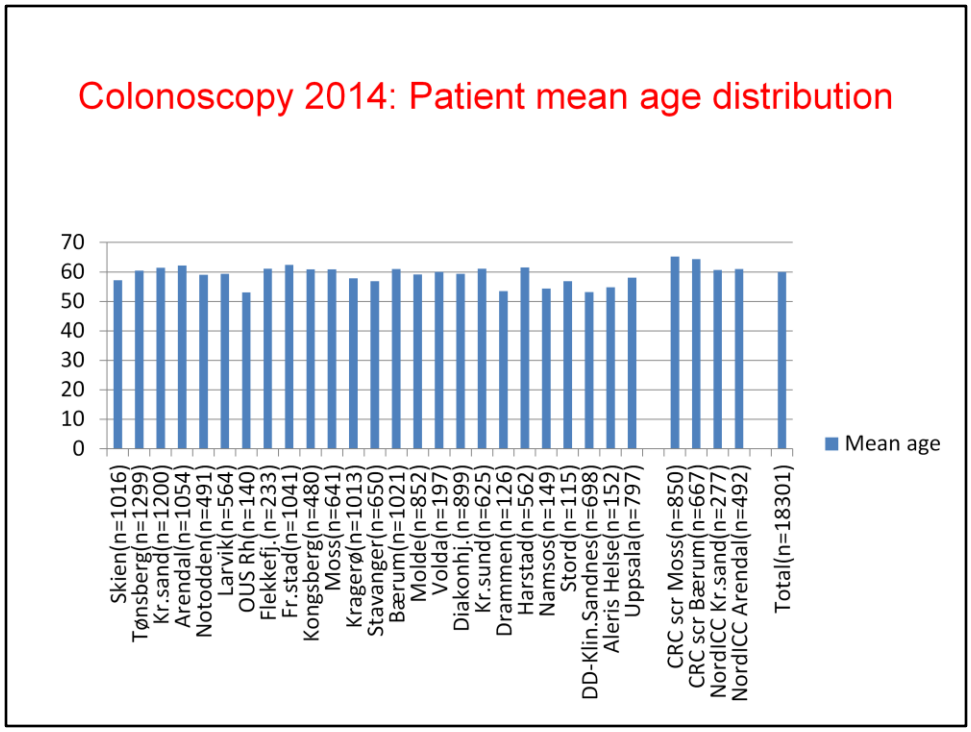
**Suggestion: Yes. Information on number of colonoscopies per Norwegian centre is already out on the web for first half-year 2014. We only publish an update of what is already out. Restricted to Norwegian centres.**




This shows patient age distribution per centre. There is a significant difference between centres which may influence performance results. Total number of colonoscopies is less than 18442 due to some missing data on age.

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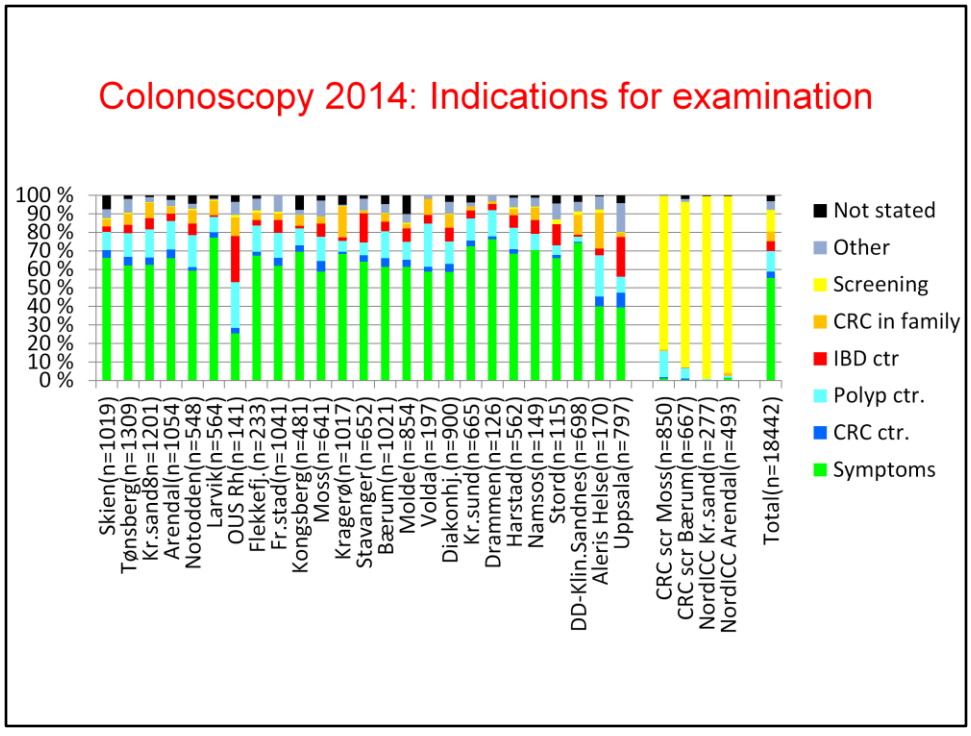


There is some variation between centres regarding reasons for referral to colonoscopy. Screening centres obviously have «screening» as the dominant reason for colonoscopy (work-up of positive screening test (CRC screening Moss and Bærum) or a primary screening tool as in the NordICC centres). In addition, some centres have a higher proportion of IBD controls than others.

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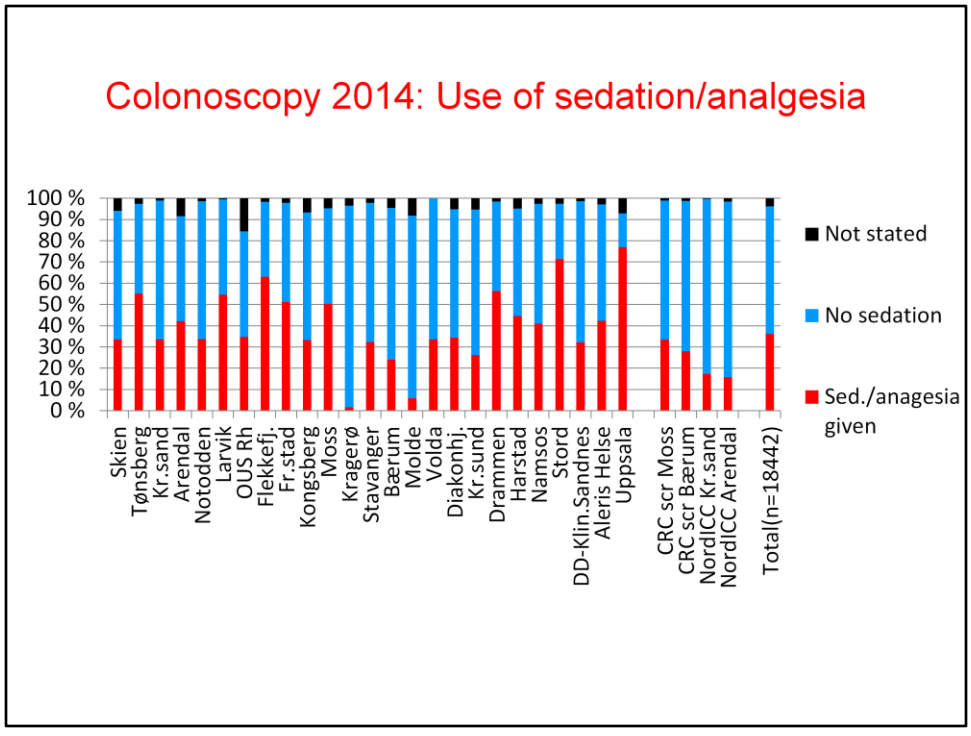


This shows considerable variation between centres in the proportion of colonoscopies performed with some kind of sedation and/or analgesia.

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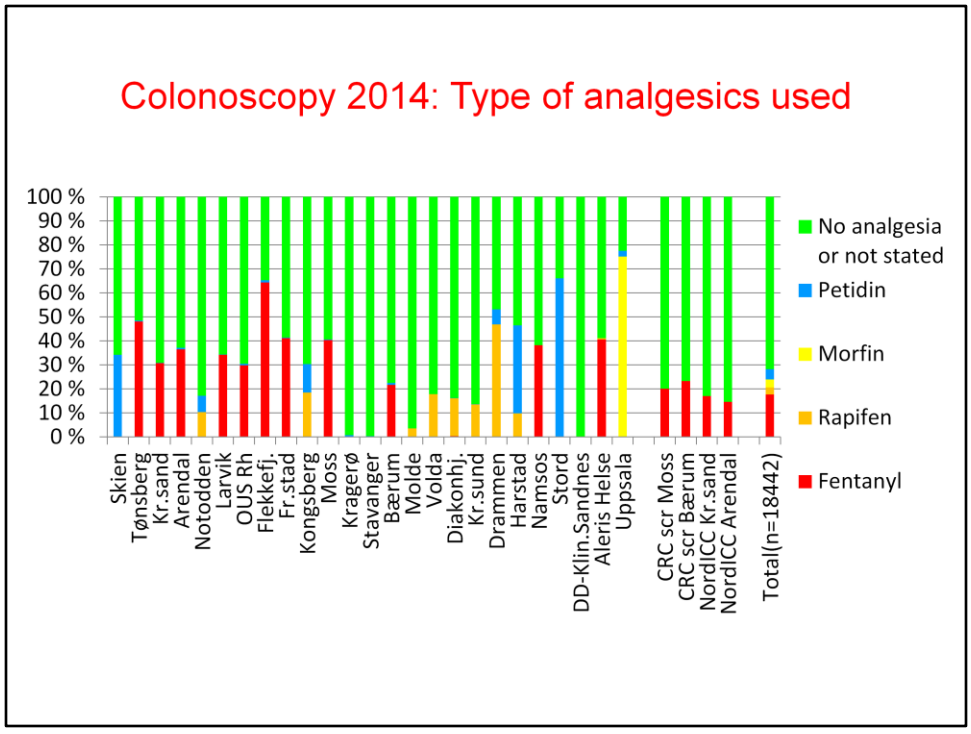


This shows that Fentanyl and Rapifen have substituted Pethidine in most Norwegian centres. Uppsala uses Morphine which has never had a tradition in Norway.

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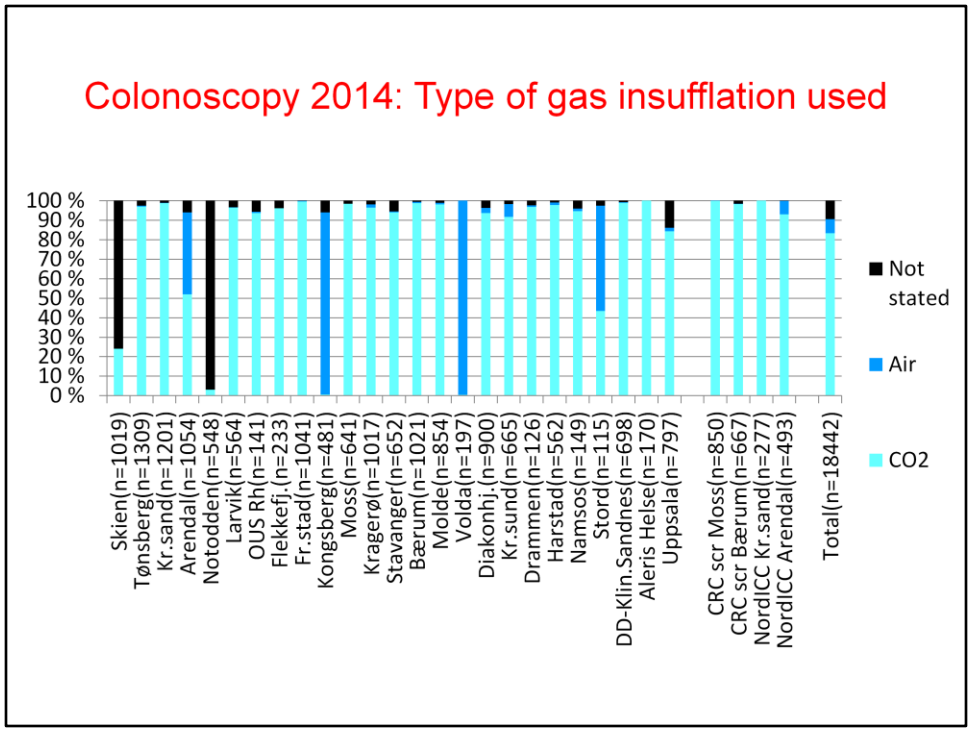


With very few exceptions, $CO_2$ has become the standard gas used for insufflation during colonoscoppy. In Skien and Notodden, $CO_2$ insufflation is standard although registered as «not stated» in the Gastronet form. Thus, «not stated» probably means exclusively $CO_2$ for these centres. This may also apply for other centres with their «not stated» fraction. $CO_2$ therefore must be considered applied in more than 90% of colonoscopies in Gastronet centres. This has been a much desired aim now coming true after many years – quite in accordance with European recommendations.

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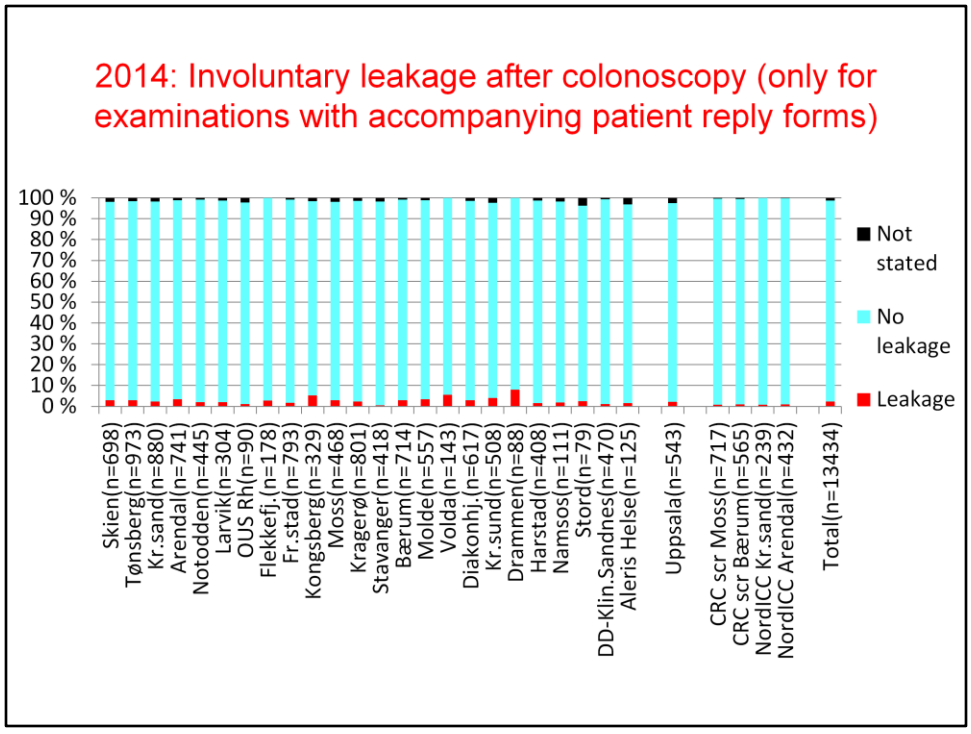


This shows that post-examination leakage on the way home after colonoscopy has become but a small problem (2.4%) after the majority of centres have converted from air to $CO_2$ insufflation.

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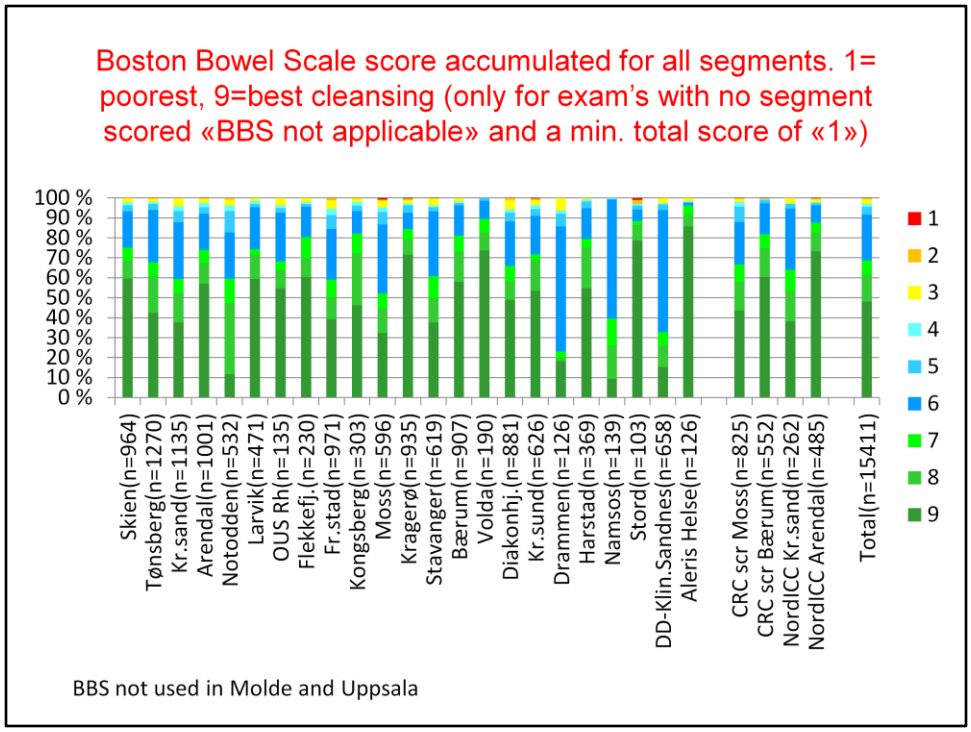
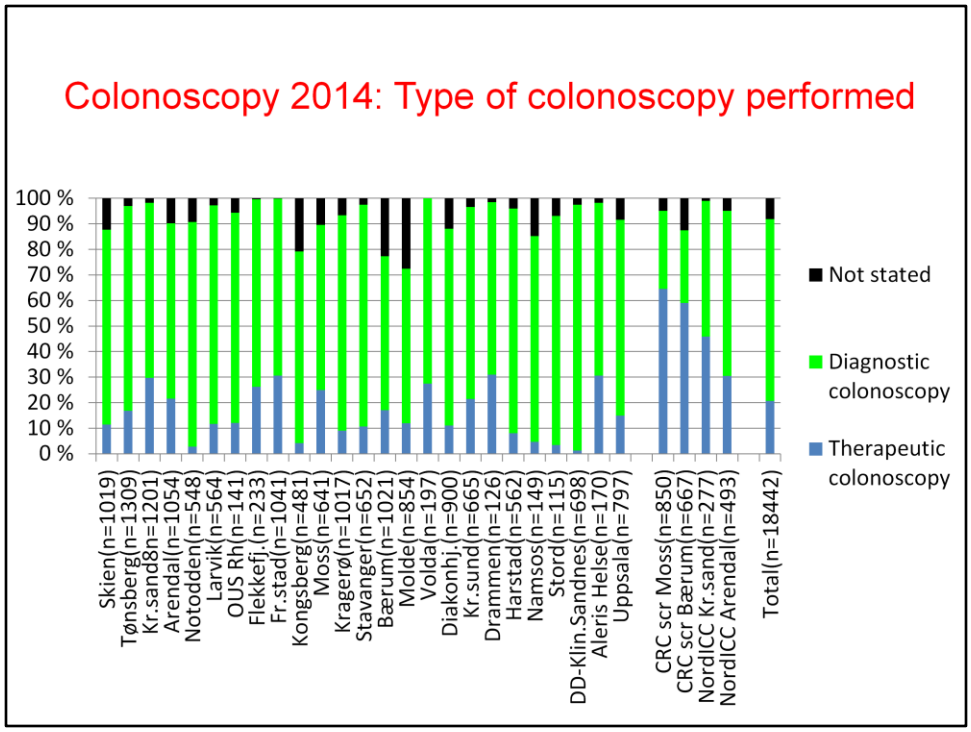



This shows some variation between centres in their proportion of examinations with different BBS scores. BBS scored as «0» in all segments or «not relevant» in any one segment are not included in the analysis. Molde and Uppsala have not used the BBS scoring form. These data are not able to differentiate between real differences in bowel cleansing results and merely differences in subjective judgement by the endoscopists. But – centres should explore both possibilities when using this in their quality assurance work. Standardization of BBS scoring may be improved by passing a web-based BBS test (ref. guidelines for Gastronet forms).

**Should we publish the information in this slide openly according to the Norwegian Health Ministry request?**
**Suggestion: No. Too complicated and not very informative for patients.**




Overall, therapeutic colonoscopies account for some 20% of colonoscopies. It is no surprise that this is much higher for the screening centres in Bærum and Moss where a large proportion is due to work-up after screen-detected polyps at flexible sigmoidoscopy screening. It seems that centres hosting screening centres tend to have a higher than average proportion of therapeutic colonoscopies – in essence probably due to higher awareness and higher polyp detection also in routine clinics.

It appears that endoscopists in some centres have not defined colonoscopies with «en route» polypectomies as a «therapeutic colonoscopy» - only «intention-to-treat»-colonoscopies (i.e. colonoscopies **planned** to be a therapeutic colonoscopy). Thus, some centres have underreported their therapeutic colonoscopies.

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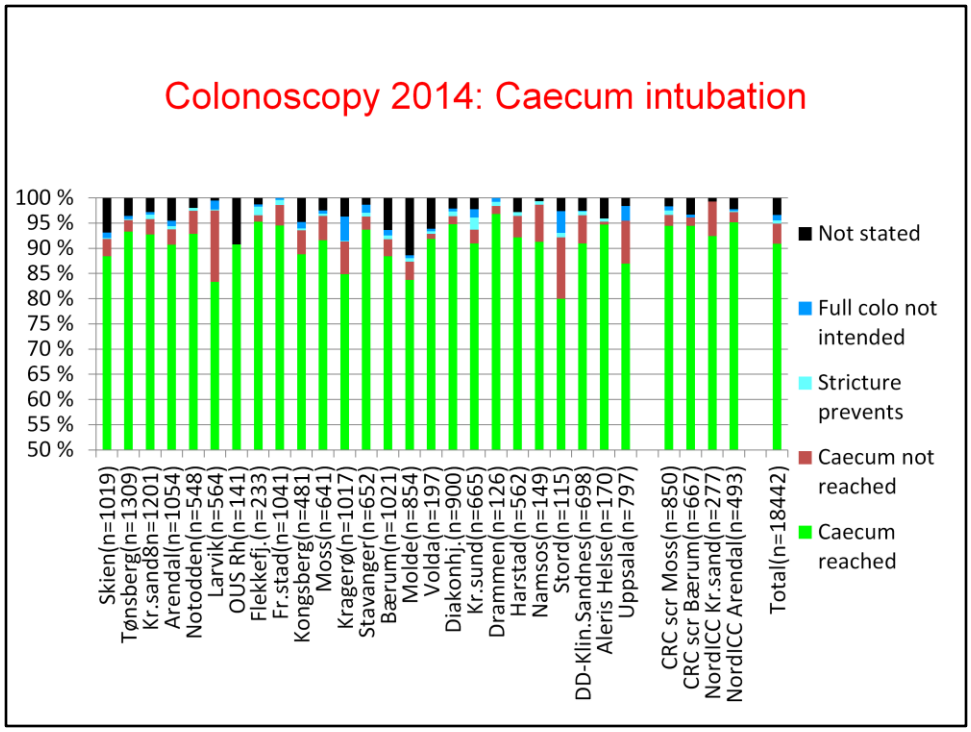


This shows a satisfactory intubation rate of more than 90% in most clinical centres and more than 95% in most screening centres – both in accordance with international standards. In logistic regression analysis adjusting for reasons for referral, patient sex and age, previous surgery, type of colonoscopy (diagnostic/therapeutic) and excluding «full intubation not intended» and intubation status «not stated», differences between centres largely disappeared except for Larvik, Fredrikstad, Kragerø, Namsos, Stord, DD-Klinikk Sandnes, Uppsala and NordICC Kristiansand. Of these, only Larvik and Stord had intubation rates below 90% when excluding «not stated» and «full colonoscopy not intended».

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## Colonoscopy 2014: Reasons for intubation failure

| Centre (no.of intub.failures) | *Stricture | Poor cleansing (%) | Other | Not stated | | *No.of CRC |
|---|---|---|---|---|---|---|
| Skien(n=37) | 5 | 4(11) | 15 | 13 | | 3 |
| Tønsberg(n=33) | 6 | 5(15) | 7 | 15 | | 8 |
| Kr.sand(n=47) | 16 | 10(21) | 15 | 6 | | 13 |
| Arendal(n=39) | 10 | 10(26) | 10 | 9 | | 6 |
| Notodden(n=28) | 5 | 3(11) | 13 | 7 | | 5 |
| Larvik(n=81) | 10 | 11(14) | 42 | 18 | | 5 |
| Flekkefj.(n=7) | 4 | 0 | 1 | 2 | | 3 |
| Fr.stad(n=53) | 20 | 9(17) | 15 | 9 | | 20 |
| Kongsberg(n=25) | 3 | 2(8.0) | 9 | 11 | | 2 |
| Moss(n=34) | 10 | 4(12) | 9 | 11 | | 7 |
| Kragerø(n=67) | 6 | 17(25) | 41 | 3 | | 8 |
| Stavanger(n=22) | 5 | 4(18) | 7 | 6 | | 7 |
| Bærum(n=42) | 9 | 6(14) | 12 | 15 | | 5 |
| Molde(n=37) | 9 | 4(11) | 12 | 12 | | 4 |
| Volda(n=3) | 1 | 0 | 0 | 2 | | 1 |
| Diakonhj.(n=23) | 9 | 5(22) | 8 | 1 | | 4 |
| Kr.sund(n=34) | 19 | 6(18) | 3 | 6 | | 12 |
| NordICC Kr.sand(n=19) | 0 | 5(26) | 11 | 3 | | 0 |
| Uppsala(n=68) | 9 | 8(12) | 24 | 27 | | 9 |
| CRC scr Moss(n=26) | 9 | 6(23) | 7 | 4 | | 6 |
| CRC scr Bærum(n=11) | 1 | 2(18) | 3 | 5 | | 1 |
| NordICC Arendal(n=11) | 1 | 2(18) | 3 | 5 | | 0 |
| Drammen(n=3) | 1 | 1 | 0 | 1 | | 1 |
| Harstad(n=28) | 7 | 0 | 15 | 6 | | 5 |
| Namsos(n=12) | 2 | 2(17) | 7 | 1 | | 0 |
| DD-Klin.Sandnes(n=44) | 8 | 23(52) | 12 | 1 | | 7 |
| Aleris Helse(n=2) | 1 | 0 | 1 | 0 | | 0 |
| Stord(n=15) | 1 | 3(20) | 10 | 1 | | 0 |
| **Total(n=851)** | **187** | **152(18)** | **312** | **200** | | **142** |

*No. of strictures preventing intubation exceed no. of CRCs reported

This shows reasons for altogether 851 caecum intubation failures. Poor cleansing accounted for 18%. Some centres should go through their bowel cleansing regimens , suggestively those with more than 18% of failures being due to poor cleansing.

Altogether, 187 failures were due to «strictures», i.e. 45 more than the total number of CRCs (n=142). Since far from all CRCs prevent intubation, this suggests that some endoscopists have a liberal interpretation of the term «stricture» (e.g. - «sharp bends» should not be misinterpreted as strictures).

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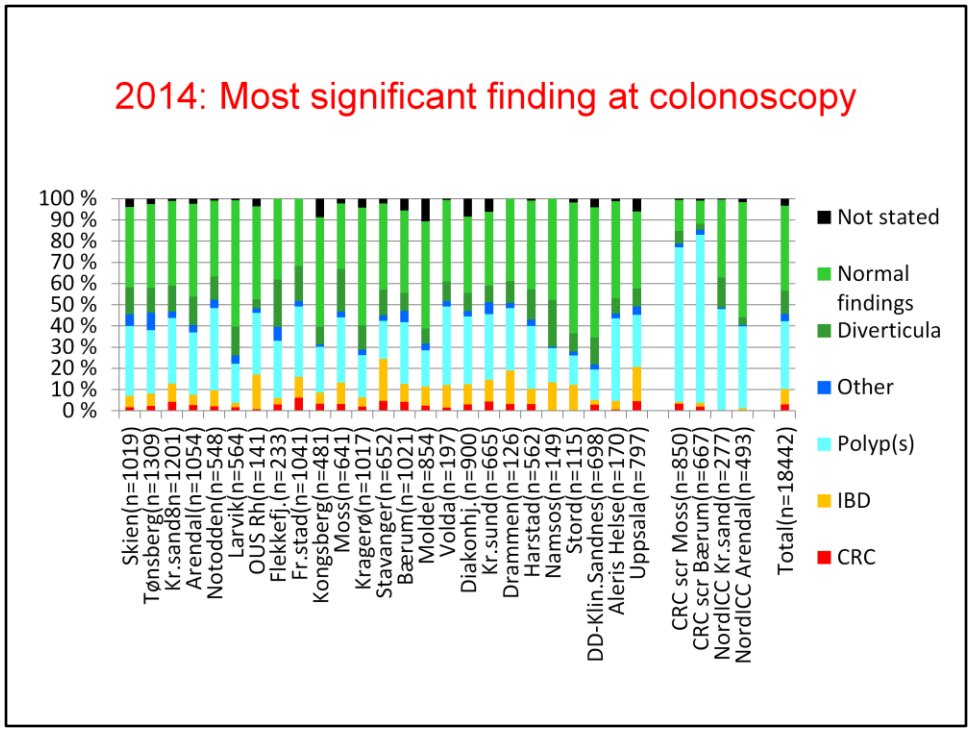


This slide sums up the single most significant finding at each out of 18442 a colonoscopies. «Polyps» in this figure means «any polyp», not only polyps ≥5mm as shown in other graphs in this series.

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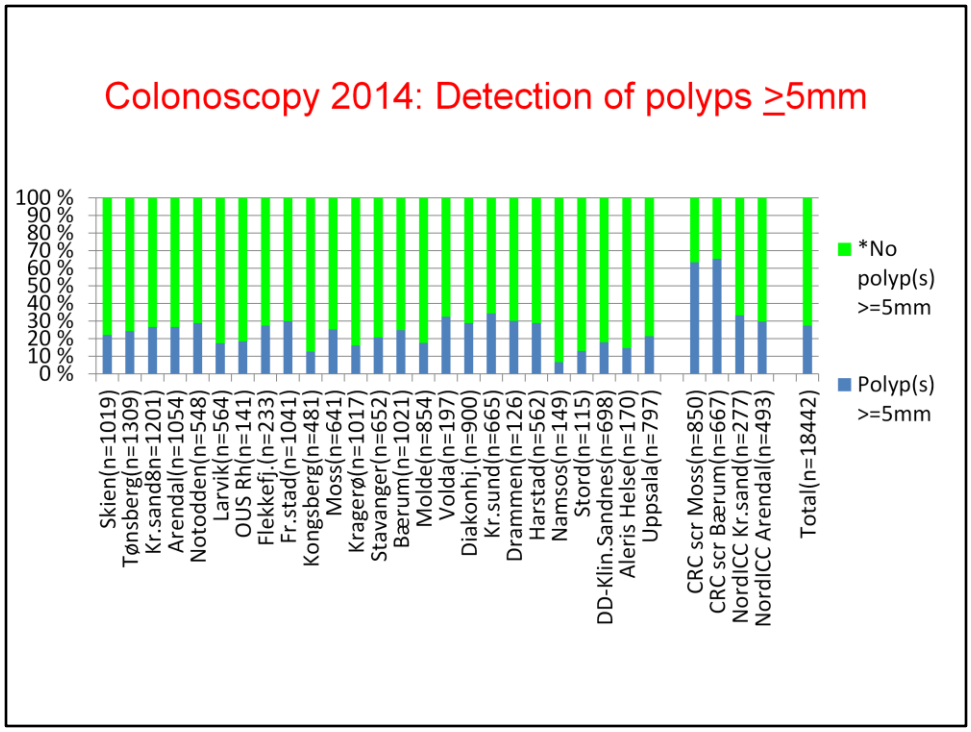


Polyp and adenoma detection rates are used as surrogate measures for adequate inspection of the entire colonic lining. Although internationally used as a quality indicator in routine clinics, they may be poor surrogates in clinics since they depend on a stable patient mix between centres and over time for each centre. They are more useful as qiality indicators in screening. The much higher polyp detection rate for screening centres in Moss and Bærum is quite understandable – a rate which has been accounted for in a previous slide on therapeutic vs/diagnostic colonoscopies for different centres.

**Should we publish the information in this slide openly according to the Norwegian Health Ministry request?**
**Suggestion: No. Poor quality indicator in routine clinics and not very informative for patients.**

## Complications after 18,442 colonoscopies

| Complication | No. | Comments |
|---|---|---|
| Vasovagal | 63 | No interventions |
| Bleeding | 36 | 4 hospital admission (observation only) |
| Perforation | 4 | 2 closed with clips, 2 not specified |
| Burnt serosa | 1 | |
| Pain | 2 | Causing discontinuation of the examination |
| Syncope | 4 | |
| Hypoglycemia | 1 | Known diabetic |
| Other | 1 | |
| Unspecified | 50 | |
| **Total** | **162** | |

Severe complications (any perforation or bleeding requiring hospital admission):
5 perf./burnt serosa and 4 bleeds admitted =9 cases (0.5 per 1000)

Overall, the complication rate was 0.9% (162 out of 18,442 colonoscopies). For severe complications, the rate was well below the 1:1000 international standard. The vast majority of complications did not require any intervention. Apparent differences between centres are most likely due to differences in threshold for reporting minor events (grades of dizziness, nausea, vasovagel reactions) and other events that are expected (e.g. when is «pain» to be defined as a complication?).

Specification of complications in Gastronet depends on using free-text comments. This is used only in 112 (69%) out of 162 cases with complications. Specification of treatment/action taken can be extracted from the text in 16 cases (9.9%) and outcome in 15 cases (9.3%). The pattern suggests, however, that action taken and outcome is mainly described for major events. Underreporting, however, is an issue to be adressed in new versions of the Gastronet form.

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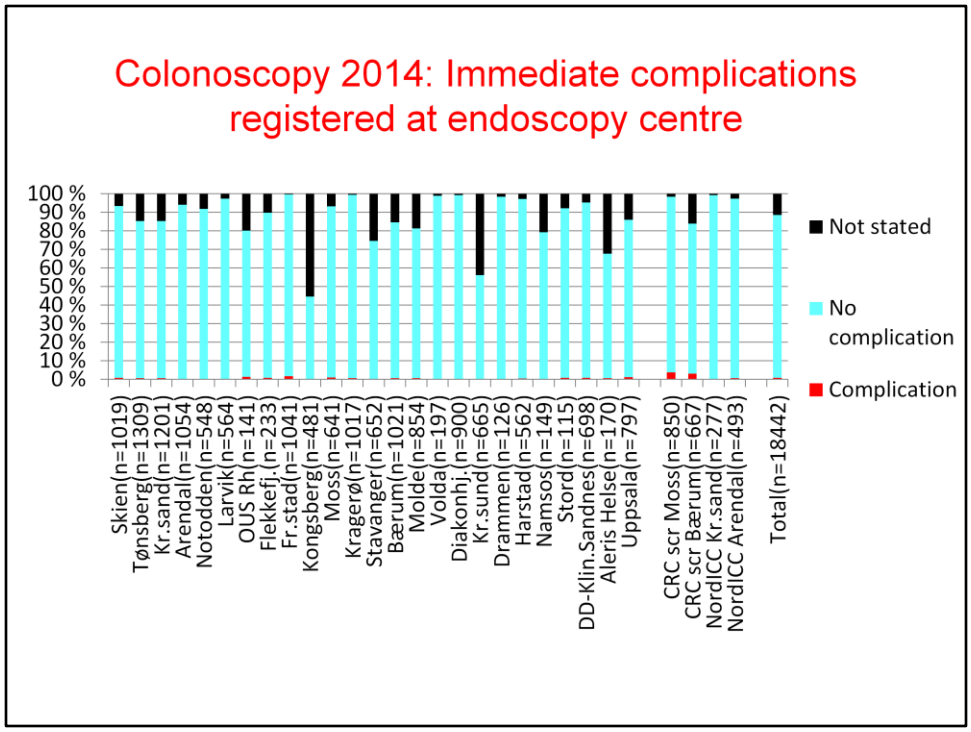


Overall, the number of severe complications was ? among 29 centres and 18,442 colonoscopies.
This slide shows the distribution of overall comlication rates per centre (minor and major events). An apparent difference between centres is most likely due to differences in threshold for reporting minor and expected events.

Check severe complications!!!!!!!!!!!!!

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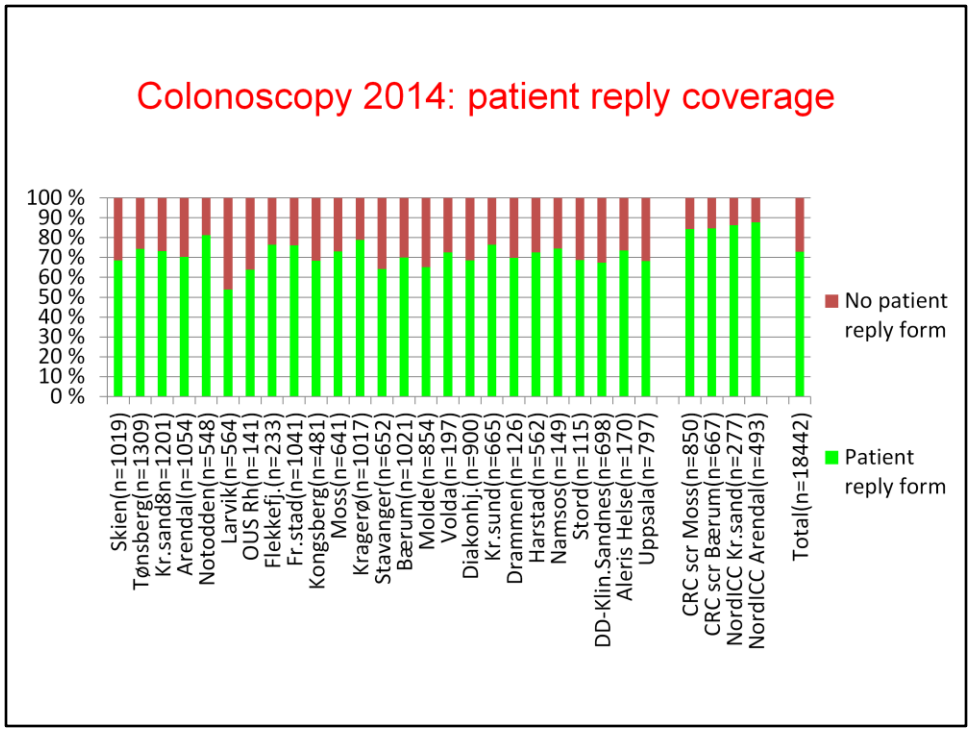


This shows that about 30% of examinations are not accompanied by a patient reply form received at the Gastronet secretariat. There is some variation between centres. By enlarge, screening centres have a better patient reply coverage than routine clinics. This is most probably due to better attention to handing out patient reply forms to the screening participants before they leave the premises.

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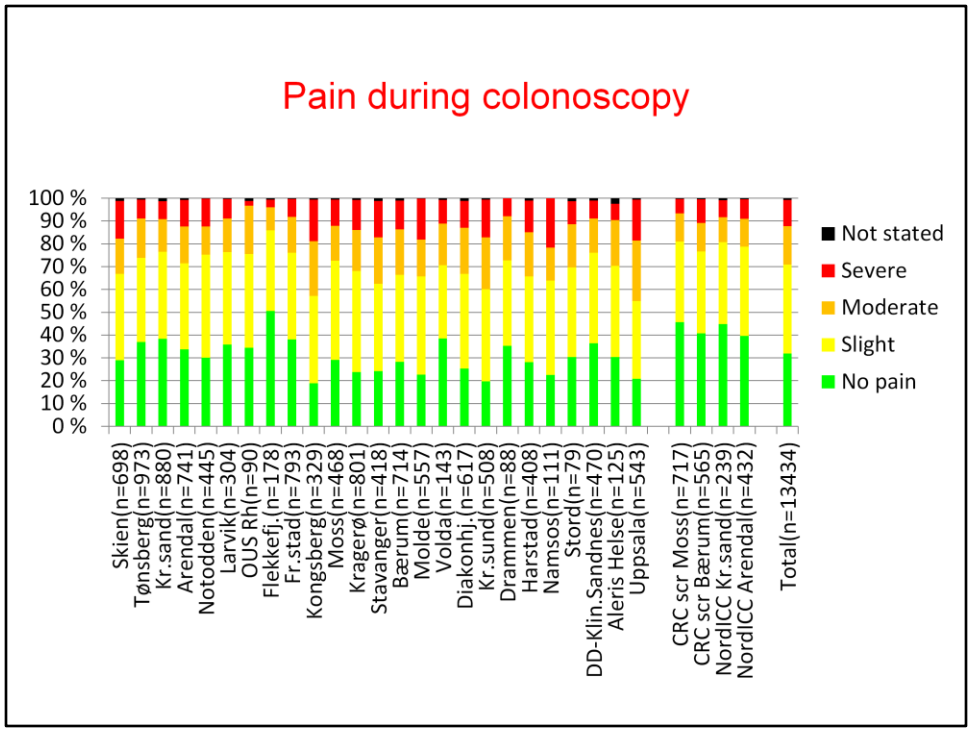


This shows patient reported pain in the patient reply form filled in at home on the day after the examination. The analysis is limited to 13,434 out of 18,442 examinations where an accompanying patient reply form has been received at the Gastronet secretariat. There are differences between centres that are not related to the use of sedation/analgesics. This may be due to inadequate selection of subgroups in particular need for sedation/analgesics (as shown by Ø Holme et al. Endoscopy 2013) and/or it may be due suboptimal endoscopy technique.

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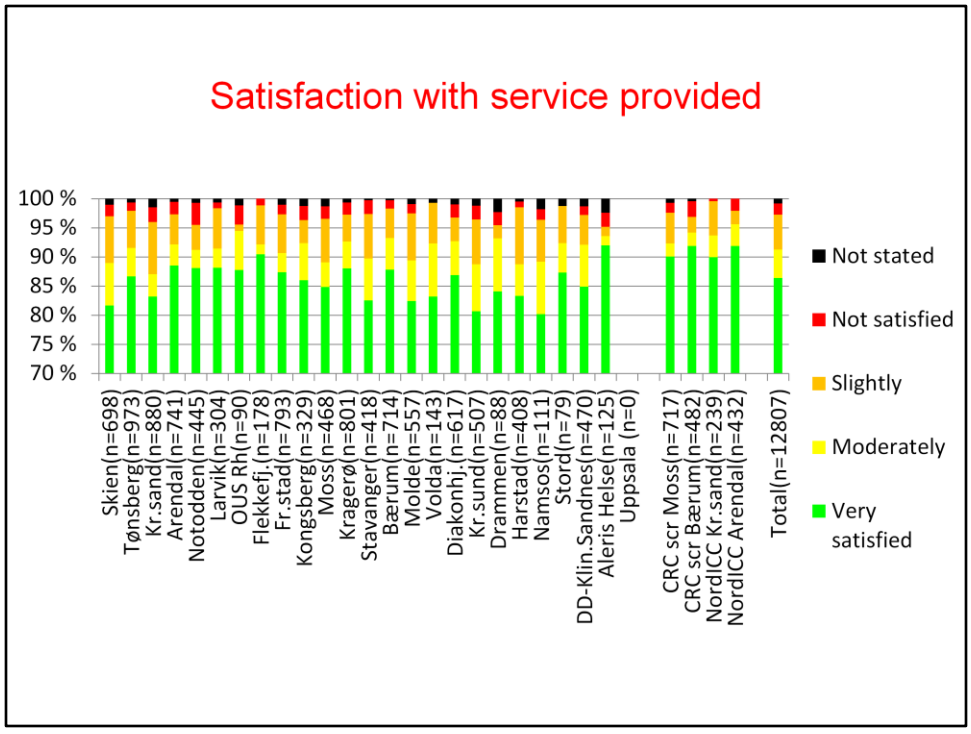
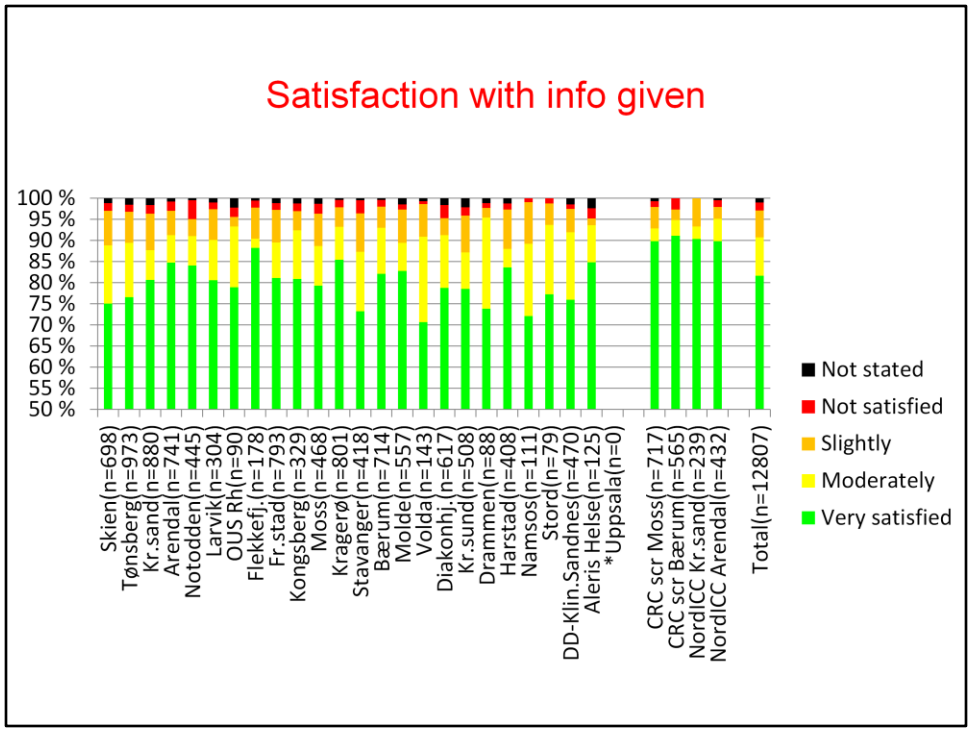



This shows degree of satisfaction with service provided (Gastronet form versions 28 & 29 only). For Uppsala, having used an earlier version (version 23) with dichotomous scores (n=543 colonoscopies with patients' form), there were 97.1% stating «satisfied», 2.2% «not satisfied» and 0.7% «no reply» in the patient reply forms received at the secretariat.

**Should we publish the information in this slide openly according to the Norwegian Health Ministry request?**
**Suggestion: Yes. The information on this slide is already out on the web for first half-year 2014 for Norwegian centres. We only publish an update of what is already out. Restricted to Norwegian centres.**




This shows degree of satisfaction with information given abut the examination (Gastronet form versions 28 & 29 only). For Uppsala, having used an earlier version with fewer scores (n=543 colonoscopies with patients' form version no 23), there were 91.7% «satisfied», 5.3% «not quite satisfied», 0.9% stating «not satisfied», and 2.0% «no reply» in the patient reply forms received at the secretariat.

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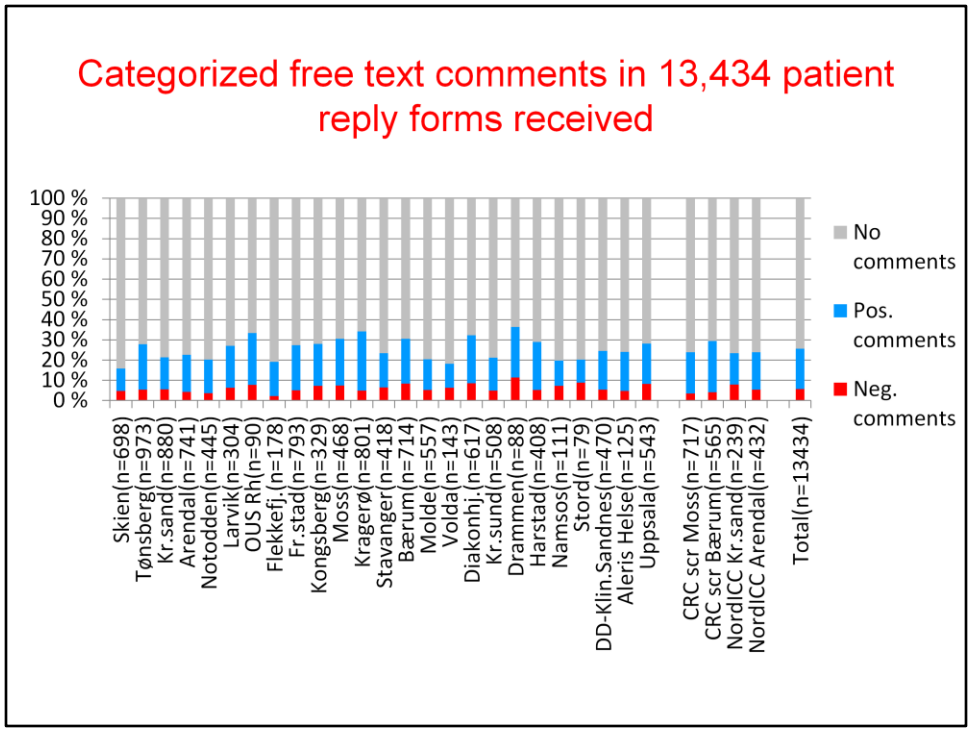


This shows free text comments from patients categorized by the Gastronet secretary into «positive» (encouraging/thankful) and «negative» (critical/complaining). Overall, the proportion of «negative» free-texts is low. For centres with taller «red columns» than others, they also tend to have more than average «positive» free-text comments. Thus, this slide may express cultural differences in expression and level of verbalizing patient experience – whether it being positive or negative.

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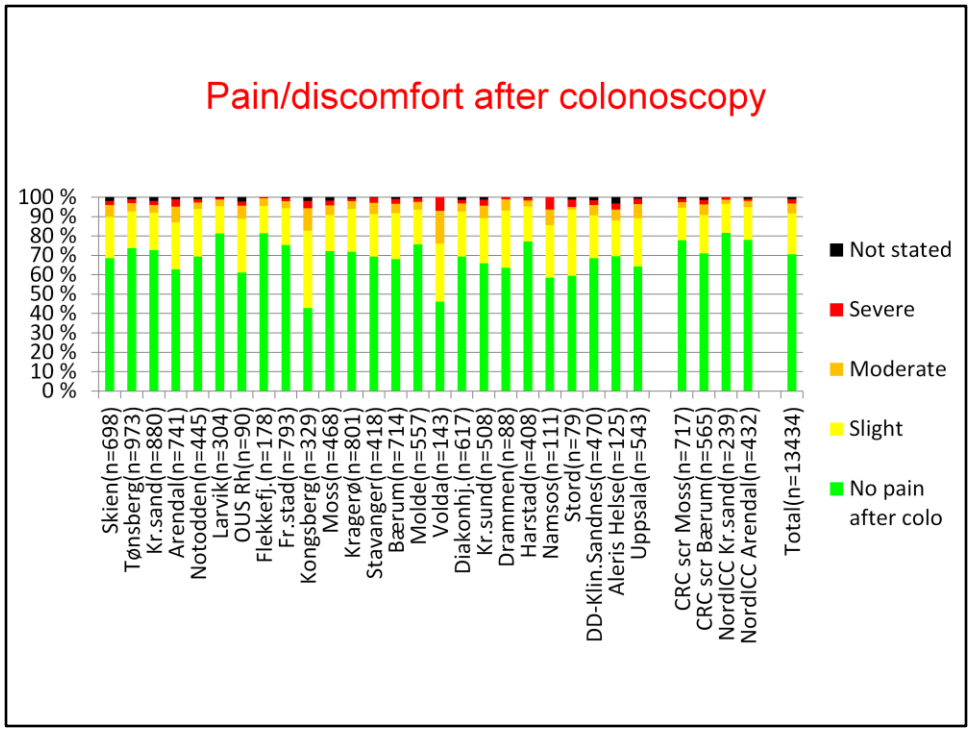
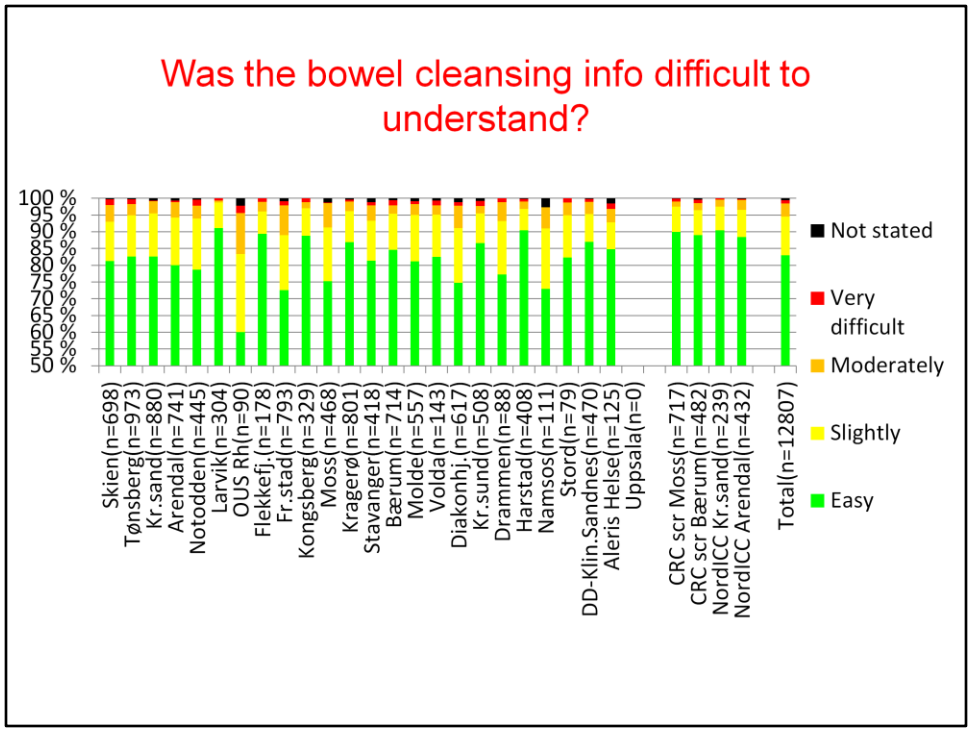



This slide shows post-colonoscopy pain/discomfort experienced by the patients – with some variation between centres. The poorest experience, however, is by patients having had their examination at centres still using air insufflation rather than $CO_2$ (Kongsberg and Volda).

With EU recommendations to use $CO_2$ both for patient comfort and for safety reasons (excluding the very small but real possibility of explosion when using diathermy – ref. Bjørn Hofstad. Tidsskr Nor Legeforen 2007;127:1789-90), a court of law may nowadays consider omission to use $CO_2$ as professional negligence in case of a patient law suit.

**Should we publish the information in this slide openly according to the Norwegian Health Ministry request?**
**Suggestion: Yes. The information on this slide is not out on the web for first half-year 2014 report for Norwegian centres. However, it is important that patients know about the reduced risk of post-colonoscopy discomfort when $CO_2$ is used. The paragraph about possible law suits should be omitted. Restricted to Norwegian centres.**




This shows patients' difficulties understanding the information given about bowel preparation (bowel cleansing recipe). This question has so far not been included in the Swedish version of the Gastronet forms (thus «0» examinations for Uppsala in this graph). For Norwegian centres, there appears to be some room for improvement of information material to reduce scores in the range «moderately» to «very» difficult to understand for patients. Centres are encouraged to make their bowel prep recipies available for others on the passworded Gastronet web by sending them to the Gastronet secretariat (hofg@online.no). A couple of recipies are already out on the web.

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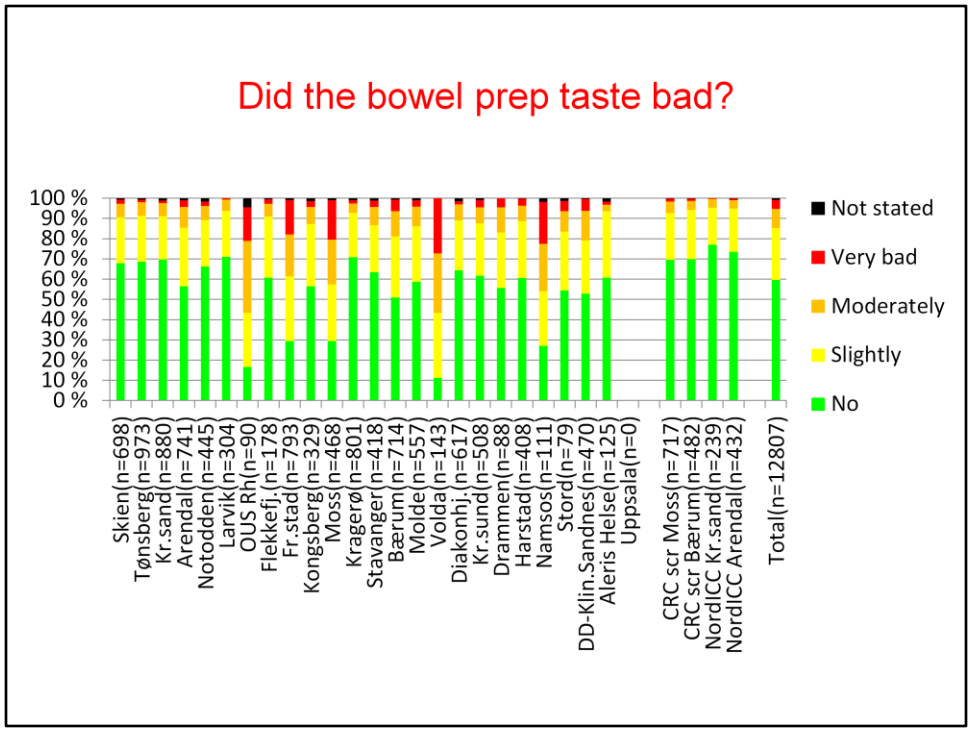


There is obviously great variatin between patient populations in their experience with the local bowel cleansing regimens. Some centres might benefit from taking contact with centres scoring better on patient satisfaction with bowel prep.

**Should we publish the information in this slide openly according to the Norwegian Health Ministry request?**
**Suggestion: No. The value of this slide lies mainly in using it locally to improve tolerance for the bowel cleansing chosen (motivation) or change to another regimen.**