Introduction: To date, several studies confirmed an increased risk of colorectal cancer (CRC) in patients with longstanding ulcerative colitis (UC). Hence societal guidelines recommend CRC surveillance in patients with longstanding UC, favoring chromoendoscopy (CE) with targeted biopsies over white light endoscopy (WLE). Narrow-band Imaging (NBI) has been also evaluated, however, it is still unclear whether it can be considered comparable to CE.

Aim: To assess by meta-analysis, the diagnostic yield (DY) of WLE, CE and NBI for detection of neoplasia in patients with UC.

Methods: MEDLINE and EMBASE searches were performed using the MESH terms "Ulcerative Colitis", "chromoendoscopy", "narrow band imaging". Prospective trials were retrieved. For each modality, comparative analysis of diagnostic accuracy was performed for the detection of any neoplasia (a per-lesion analysis) as well as any patient bearing a neoplastic lesion (a per-patient analysis).

Results: The search yielded eleven studies eligible for analysis. Five studies compared CE to WLE. CE (n=361 patients) was found to be superior to WLE (n=358 patients): per-patient analysis odds ratio (OR)-2.05 (95% CI 1.26,3.35; p=0.004; I²=0%); per lesion analysis OR-2.79 (95% CI 2.08,3.73; p=0.00001; I²=22%). In four studies comparing NBI (n=305 patients) to WLE (n=305 patients) no difference was found: Per-patient analysis OR-0.97 (95% CI 0.62,1.53; p=0.91; I²=0%); per lesion analysis OR-0.94 (95% CI 0.63,1.4; p=0.68; I²=0%). Two studies compared CE (n=104 patients) to NBI (n=104 patients) and were not statistically significant different: per-patient analysis OR-1.0 (95% CI 0.51,1.95; p=0.73; I²=0%); per-lesion analysis OR-1.29 (95% CI 0.69,2.41; p=0.93; I²=0%).

Conclusion: Our results suggest that CE has a superior DY for detection of neoplasia in patients with UC. NBI was not significantly different to either WLE or CE, but due to the low number of studies, further evaluation is needed. Until more data will be available, we recommend CE as the preferred method in UC surveillance colonoscopy.