

Title:**The interim analysis of CAP ACCESS: The National Capsule Audit of CCE Polyp Sizing System.****Authors: I. Lei, H. Ibrahim, R. Jardine, A. Arefin, C. McGreevy, G. Kiladze, C. Hunt, K. Anastasios, I. Parisi, A. Watson, C. Shekhar, T. Lee, J. Jennings, M. Aly, R. Arasaradnam****Introduction:**

With the resurgence of Colon Capsule Endoscopy (CCE) since the beginning of the COVID pandemic, the recent interim analysis of the NHS England Pilot project indicates promising results, sparing 70% of patients from unnecessary colonoscopy after CCE. The accuracy of polyp measuring plays a crucial role in determining the need for subsequent colonoscopies. However, concerns about the polyp size measuring tool's accuracy prompted **the National Capsule Audit of the CCE Polyp Sizing System (CAP ACCESS).**

Aim: To compare the accuracy in the size and number of polyps on CCE with the subsequent lower GI optical endoscopy (OE), including both colonoscopy and flexible sigmoidoscopy, as well as histopathology (HP). Additionally, it investigates the impact of CCE's diagnostic accuracy on further endoscopic procedures.

Methods:

In our interim analysis, 1,896 CCE reports from 6 centres in Scotland & England were screened. Polyps reported from CCE were rigorously matched with corresponding OE and HP reports based on specific criteria - polyp size, location, sequence, and overall count. Only polyps meeting at least three criteria were paired and included for analysis. Concordance in polyp sizing was assessed by comparing CCE-reported polyp sizes against OE and HP measurements using paired t-tests.

Results:

Our results revealed that 52% of patients required subsequent endoscopic evaluation: colonoscopy (30%) & flexible sigmoidoscopy (22%). Of these, polypectomy accounted for 33%, while incomplete procedures and inadequate bowel preparation constituted 18%.

Among 2,828 polyps, 576 paired polyps were identified. CCE overestimated the polyp size by 2.9mm compared to OE and HP, with statistical significance ($p < 0.001$) in both CCE vs OE and CCE vs HP.

Subgroup analysis categorised polyps in 3 size groups: i) size < 6mm, ii) 6 ≤ size < 10mm, and iii) size ≥ 10mm, **see table**. Moreover, overestimated CCE polyp sizes led to 6.7% unnecessary OEs, while 7.6% of subsequent OEs could not locate previously identified significant polyps (size > 10mm) by CCE. The primary limitation lies in the uncertainty of pairing small polyps (< 6mm).

Conclusions:

Our data affirms the reported trend of polyp overestimation in CCE – mainly in those > 6mm. In the evolving landscape of artificial intelligence, the prospect of a high-precision size-measuring tool may be within reach.

Size (mm)	Size (CCE)-Size (HP) (mm)	Size (CCE) - Size (OC) (mm)	Size (OC) - Size (HP) (mm)
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	N paired polyp	Mean	95% CI		p value	Mean	95% CI		p value	Mean	95% CI		p value
Total	576	2.9	2.5	3.2	<0.001	2.9	2.6	3.2	<0.001	-0.09	-0.34	0.16	0.48
Size<6	126	-0.085	-0.51	0.34	0.69	0.47	0.09	0.86	0.015	-0.56	-0.92	-0.21	0.0022
6=<size<10	210	2.1	1.8	2.4	<0.001	2.4	2.1	2.7	<0.001	-0.30	-0.63	0.34	0.078
Size≥10	235	5.2	4.6	5.8	<0.001	4.8	4.2	5.5	<0.001	0.36	-0.13	0.85	0.15