Converting from barium enema to virtual colonoscopy (VC) - a single centre's experience

Sarah La'Porte, David Burling, Jeremy Weldon, Janice Muckian.
Department of Radiology, Northwick Park & St Marks Hospital, Harrow, Middlesex.

Background & Aim
VC is generally regarded as the preferred radiological investigation of the colon. Over 12 months, all requests for barium enema for patients with symptoms potentially attributable to colorectal cancer were converted to VC. The aims of this audit were to assess the impact of this change in service on number of referrals and whether our new locally agreed standards for VC service provision were achievable.

Standards, Indicators & Targets
Local standards (expert consensus):
- 95% VC exams should be reported < 2 days
- 98% of exams technically adequate & 80% optimal quality
- PPV 0.9 for cancer & 0.8 for large polyps (10mm+)
- 100% cancers should undergo same day staging
- 100% cancer reports faxed to clinicians.
- < 5% normal patients sent for additional investigation of incidental extracolonic findings

Indicators:
- Interval between date of scan & reporting
- % inadequate or suboptimal examinations
- No. of cancers/ large polyps confirmed endoscopically
- % cancer cases undergoing same day staging
- % cancer reports faxed to clinicians
- % subsequently proven normal patients undergoing further investigations

Methodology
Data relating to patient demographics and scan findings for VC exams performed over 6 months (Aug – Sept 2006) was prospectively accrued. To calculate PPV, findings at VC were compared to a combined reference standard of endoscopy and pathology. The no. of patients referred for additional investigation of extra-colonic findings was determined.

Results from first round
- 175 VCs in total (cf 149 barium enemas in preceding 6 months)
- 88% of VCs reported <2 days – Target met
- 99% examinations were adequate and 85% optimal - Target met
- 10 (91%) of 11 cancers underwent same day staging – Target not met
- PPV was 0.9 for cancer & 0.94 for large polyps - Target met
- Of 11 new cancers 100% reports faxed to clinicians - Target met
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- 10 (2%) normal patients underwent further imaging – Target met

Conclusion of initial audit
The conversion of our radiology colon imaging service from barium enema to VC has increased our activity with most of our agreed standards achieved. Of the unmet targets, we narrowly underperformed on our reporting time target and same day endoscopy staging. A further consensus meeting of the joint radiology/endoscopy team agreed that the 100% standard for same day endoscopy was unrealistic as this strategy may be inappropriate in approximately 10% of cases for example due to co-existing anticoagulant therapy. We planned to continue with an ongoing audit and re-analysis every 6 months.

Re-audit
A re-audit was performed over the subsequent 6 month period (Oct 2006 - Apr 07).
- 322 VCs in total
- 57% of VCs reported <2 days - Target not met
- 98% examinations were adequate & 84% optimal - Target met
- 18 (95%) of 19 cancers same day staging – New target met
- PPV was 0.97 for cancer & 0.94 for large polyps - Target met
- Of 19 new cancers 68% reports faxed to clinicians - Target not met
- 7 (2%) normal patients underwent further imaging - Target met

Re-audit Conclusion
The reporting time and faxing of urgent reports has declined over the second 6 month period. This was thought to be due to a near doubling of VC activity, loss of a reporting radiologist and significant reduction in secretarial support due to financial constraints.

Change to Practice
Recent implementation of voice recognition software has occurred which should enable immediate dictation and urgent report generation. A dedicated VC programme coordinator has been appointed with responsibility for ensuring urgent reports are provided and endoscopy, staging and follow-up are arranged. Radiographers have undergone training in VC interpretation with plans for radiographers to provide an initial read in the future. Data from our ongoing audit will be further analysed in 6 months time.