Would you prefer to perform endoscopy with a clean endoscope?

Very good effect of a quality control program for cleaning and disinfection of endoscopes.

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Introduction.

Flush water from the water channel obtained immediately before an endoscopy was used to evaluate a quality control program for cleaning and disinfection of flexible gastrointestinal endoscopes (FE).

A recent international publication found 39% – 49% of endoscopes ready for use contaminated at high rate[1].

Definitions for the Quality Control Program

Bacteria from flush water from the water channel of flexible endoscopes (FE)

Clean FE	Critical FE	High-risk FE
< 25 CFU per ml.	25 – 250 CFU per ml.	>250 CFU per ml.

Limit of intervention: Mean percentage of clean FE (previous year) – 3 X STD

Materials and Methods

Six endoscopy units from five hospitals in Copenhagen Hospital Corporation (H:S) and three units from three hospitals in Copenhagen County (KAS) participated in the program.

At least 100 baseline samples were obtained immediately before an endoscopy from the nine endoscopy units.

Risk factors were identified, procedures for cleaning and disinfection of the endoscopes were revised and products unsuitable for cleaning and disinfection of FE were phased out.

Continuous quality control

- A continuous quality control program was establi-shed and included
  - Sampling before all endoscopies on a single day per month corresponding to 5-6 per cent of all endoscopies.
  - Monthly-cumulated written performance reports and control charts.
- Intervention at the endoscopy unit was performed if
  - A high risk FE was detected
  - Clean endoscope percentage fill below limit of intervention
- Outliers due to defect endoscopes or defect washer-disinfectors (WD) are excluded and the percentage of clean endoscopes is determined for one year.

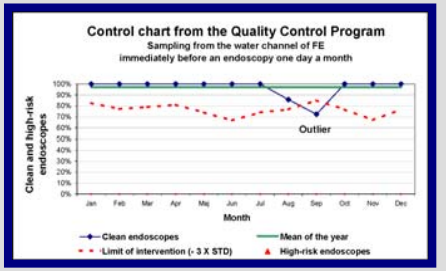

Figure 2: A control chart shows a quality program failure. Lack of routine maintenance of the Olympus ETD washer-disinfector leaded to a process temperature two degrees lower than recommended.

Table 1: Per cent of clean endoscopes from base line from the years 2001 and 2002. Outliers are excluded.

Hospitals	Per cent clean endoscopes (Total sample numbers)		
	Baseline	Year 2001	Year 2002
H:S	94,7 (945)	96.8 (347)	99,0 (725)
KAS	98,1 (321)	94,5 (325)	95,1 (309)

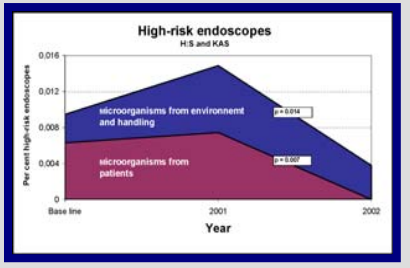

Figure 1: Percent of critical endoscopes from the base line at the years 2001 and 2002. Outliners are not excluded.

Results

Table 1 shows the percentage of clean endoscopes. Outliers are excluded. Critical endoscopes were particularly correlated to an insufficient manual cleaning.

Figure 1 shows the percentage of high-risk endoscopes without exclusion of outliners. High-risk endoscopes are particularly correlated to proliferation of microorganisms over night in the FE channels.

Some strains of coagulase negative staphylococci seem to survive both heat in the WD and alcohol flushing of the channels of FE before storage.

Figure 2 shows that lack of routine maintenance of washer-disinfectors leads to quality program failure.

Conclusion

- High quality manual cleaning and alcohol flushing are single most important factors for clean endoscopes
- Lack of routine maintenance of washer-disinfectors leads to quality program failure.
- Ineffective disinfectants and detergents have been removed from use.
- New detergents and disinfectants must pass the Quality Program before being implemented.
- The highest success rates were observed in units with energetic FE staff involvement.