# Audit of the incidence of ciprofloxacin resistant flora in the rectum of men undergoing gold seed insertion for image-guided prostate radiotherapy.

**Descriptor:**

Aim:

To assess if levels of ciprofloxacin resistance are high enough to warrant a change in antibiotic prophylaxis prior to gold seed insertion.

**Background:**

Image-guided radiotherapy in prostate cancer has been shown to reduce the side effects associated with treatment [1]. The most common method of daily image-guidance uses gold seeds which are implanted into the prostate in a procedure which in most centres is done via the trans-rectal route. The risk of systemic sepsis is likely to be similar to that seen after prostate biopsy, which is stated to be 2-3% [2].

Antibiotic resistance appears to be increasing in prevalence. We currently prescribe ciprofloxacin (500mg bd for 5/7, starting the night before the procedure) and metronidazole (1g pr 1-2 hours prior to procedure) prior to a trans-rectal prostate biopsy or gold seed insertion procedure, to reduce the risk of rectal bacteria causing prostatitis. However, the incidence of ciprofloxacin-resistant isolates is 10-20% in recent series [3,4]. Despite this our rates of severe infection are low. However the rate of post-biopsy infection in large series is increasing, which is attributed to increasing ciprofloxacin resistance [5].

The cost of a post-biopsy infection in the NHS has been estimated to be £4260 per patient and hence there are potentially large savings with a strategy which reduces the rate of hospital admission after prostate biopsy [2]. Targeted antibiotic prophylaxis has been shown to reduce rates of infection [4].

## The Cycle

**The standard:**

Incidence of ciprofloxacin-resistant coliforms in this population is stated to be 19% [4].

**Target:**

• To assess rates of ciprofloxacin resistant isolates present in the rectum of patients undergoing gold seed insertion to establish if rates in our population are as high as those documented in the literature (19%)

• To assess the proportion of patients who require alternative antibiotics as prophylaxis, and to document which antibiotics are needed

## Assess local practice

**Indicators:**

• Percentage of patients with ciprofloxacin resistant isolates

• Percentage of patients with gentamicin resistant isolates

• Number of patients experiencing sepsis

**Data items to be collected:**

Rectal swab result:

   • Presence/absence of ciprofloxacin resistant isolates

   • Presence/absence of gentamicin resistant isolates

   • Antibiotic sensitivities of ciprofloxacin/gentamicin resistant isolates

Episodes of systemic sepsis in the audited population

**Suggested number:**

100 patients.

**Suggestions for change if target not met:**

If the proportion of patients with ciprofloxacin resistance is higher than 20%, a local consultant microbiologist should be consulted regarding altering the prophylactic regimen. At levels of <20% ciprofloxacin resistance it may also be appropriate to review antibiotics, as those with these isolates have a higher risk of serious sepsis. Where resources permit, the gold fiducials can be inserted trans-perineally which removes the need for prophylactic antibiotics. The levels of antibiotic resistance will change over time, so a re-audit is useful every 3 years.

**Resources:**

Close collaboration with microbiology staff is essential. We found it helpful to flag the rectal swab audit samples with a fluorescent sticker to distinguish them from standard ‘stool’ samples which are just tested for VRE in the lab, hence no sensitivities are given on the report. A patient information sheet is helpful to explain the purpose of the audit.

**References:**

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**Editor's comments:**

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