



Healthcare  
Improvement  
Scotland

**SHTG**  
Advice on health  
technologies

## Plain Language Summary

### An assessment of local anaesthetic biopsies of suspicious laryngeal and pharyngeal lesions

SHTG Assessment | February 2024

#### What are suspicious laryngeal or pharyngeal lesions?

Laryngeal and pharyngeal lesions can indicate that cancer is present. Laryngeal cancer is a type of cancer that affects the larynx (voice box). The larynx is part of the throat found at the entrance of the windpipe (trachea). It plays an important role in helping you breathe and speak.

Pharyngeal cancer is a type of cancer that affects the pharynx which is the area behind the nose and mouth. When there is a clinical suspicion of cancer being present, a tissue sample of the area is undertaken to investigate.

#### What is local anaesthetic tissue sampling?

Local anaesthetic tissue sampling of suspicious laryngeal and pharyngeal cancers happens when the procedure is performed in an outpatient setting under local anaesthetic. This means that hospitalization and general anaesthesia is not required to undertake the tissue sampling. In the outpatient setting, disposable diagnostic equipment such as a reusable rhino laryngoscope with a working channel and forceps (used for reaching the affected area and obtaining a biopsy) and cameras used to see the affected area, are set up to perform the procedure. This equipment can be used in any setting and unlike reusable equipment, does not require to be cleaned after every use as it is disposed of in general waste.

## Why is this important?

There has been difficulty in achieving Scottish Government targets on waiting times for diagnosis and treatment of head and neck cancers.

The possibility of obtaining a tissue sample in a dedicated clinic room in an outpatient setting or any clinical setting using disposable biopsy equipment could result in less inpatient procedures under general anesthetic and reduce waiting times.

## What we did?

We searched the published literature and reviewed relevant evidence on diagnostic accuracy, safety, tolerability, cost-effectiveness, and other outcomes of outpatient biopsy procedures (reusable rhino laryngoscopes) in patients with suspicious laryngeal and pharyngeal cancers, published since our initial assessment in 2018. We searched all the literature for evidence on single-use diagnostic equipment.

We updated the budget impact model developed for the SHTG assessment of outpatient biopsies in 2018.

We incorporated an environmental impact assessment (EIA) comparison of reusable and single use rhino laryngoscopes.

## What we found?

The most recent evidence we found was consistent with that identified in our previous literature review in 2018. It showed outpatient procedures are safe and well tolerated, with a high chance of identifying true positive results but low chance of finding true negatives. As a result, confirmatory inpatient procedures for negative results may be necessary to avoid incorrect diagnosis.

There is some limited evidence to suggest that outpatient biopsies may reduce waiting times to diagnosis and/or treatment when compared with inpatient procedures.

No published clinical or cost-effectiveness evidence was identified for biopsies of the larynx and pharynx with single-use channeled rhino laryngoscopes and a portable monitor.

One recent UK-based cost-effectiveness analysis indicated that tissue sampling with local anaesthesia in an outpatient setting (with reusable rhino laryngoscopes) was less effective but less costly when compared with inpatient procedures.

In our updated budget impact assessment, it is likely that the introduction of outpatient biopsy procedures (with reusable rhino laryngoscopes) across Scotland is similar in cost (and potentially cost saving) when compared with inpatient procedures and 100% of negative results are followed-up by an inpatient procedure. However, this conclusion is highly dependent on initial investment requirement (number of rhino laryngoscopes per health board), volume of procedures and the rate of confirmatory inpatient procedures necessary following a negative outpatient biopsy result. It is likely that performing all biopsy procedures with single-use rhino laryngoscopes is more costly per annum than with reusable rhino laryngoscopes in an outpatient setting or inpatient procedures with biopsy.

Based on an environmental impact assessment conducted by SHTG, the routine use of reusable flexible rhino laryngoscopes is recommended over the use a single use equivalent where possible.

### What is our conclusion?

Laryngeal or pharyngeal biopsies in an outpatient setting (with reusable rhino laryngoscopes) can detect true positive results with high certainty but not true negative biopsy results. As such a second biopsy procedure may be necessary. Procedures are safe and well tolerated. However, most evidence at present may be with high risk of bias.

Local anesthetic tissue sampling is now possible in any clinical setting due to the introduction of single use rhino laryngoscopes and portable monitors. However, evidence on diagnostic accuracy, safety, tolerability and cost-effectiveness is not available at present. The obvious benefits of this technology are that it can be used in any clinical setting to reduce waiting times, and no cleaning of equipment is needed after use. However, some partially relevant evidence (in single use rhino laryngoscopes for visualizing upper airways) indicate the portable system is inferior in terms of image quality when compared with reusable endoscopic equipment.

Outpatient biopsies with reusable rhino laryngoscopes are likely cost neutral and potentially cost saving when compared with inpatient procedures with biopsy. It is likely that performing all biopsy procedures with single-use rhino laryngoscopes is more costly per annum than with reusable rhino laryngoscopes in an outpatient setting or inpatient procedures with biopsy.

Based on an environmental impact assessment, the routine use of a reusable flexible rhino laryngoscope device for biopsies is highly recommended compared to the single use equivalent.

### What next?

SHTG's assessment of the evidence will be shared with the relevant stakeholders for information.

This plain language summary has been produced based on SHTG Assessment of local anaesthetic biopsies of suspicious laryngeal and pharyngeal lesions February 2024