

# Workload Related to Histological Analysis in Gastroscopy

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## Introduction

Biopsic sampling for histological exams is a commonly used method during both ordinary and extraordinary esophagogastroduodenoscopy (EGDS) exams. This technique is still the only way to detect the presence of neoplastic formations and other critical conditions. Histologies are also commonly used to detect the Helicobacter Pylori. In some cases alternatives to the histological exam exist and they are often less invasive and have a lower impact on time and the costs of the gastroscopy unit and the hospital. Some new technologies offer a significant reduction to the total amount of histologies in the unit. Among these, endofaster by NISO Biomed, introduces a 30% reduction in the total amount of histologies.

## Aims

The first aim of the current study is to identify the several activities of the endoscopic nursing staff that are related to the biopsic sampling, the management and traceability of the histological analysis and to evaluate the total time related to this activity. The second aim is to evaluate the impact of a 30% reduction (introduced by a novel technology) of the amount of biopsies on the working time of the nurses.

## Methods

This multicentric study has been conducted among 13 regional representatives of Anote Anigea, the Italian Association of Nurses for Endoscopy. These experienced nurses were responsible to collect the data, relying on their detailed knowledge of the procedures in their gastroscopy unit. The study can be divided into 3 different steps:

### 1.set up of the survey:

CR and DC identified the different phases and activities. These were then confirmed by the 13 regional representatives. The authors had to adapt the different activities in order to make them uniform to the procedures in all the different hospitals all over the country. The activities were then organized into 4 work phases.

### 2.distribution of the survey:

the local nurses filled the survey with the time related to each activity, based on their experience. These times were evaluated and then confirmed during an ordinary day in the hospital.

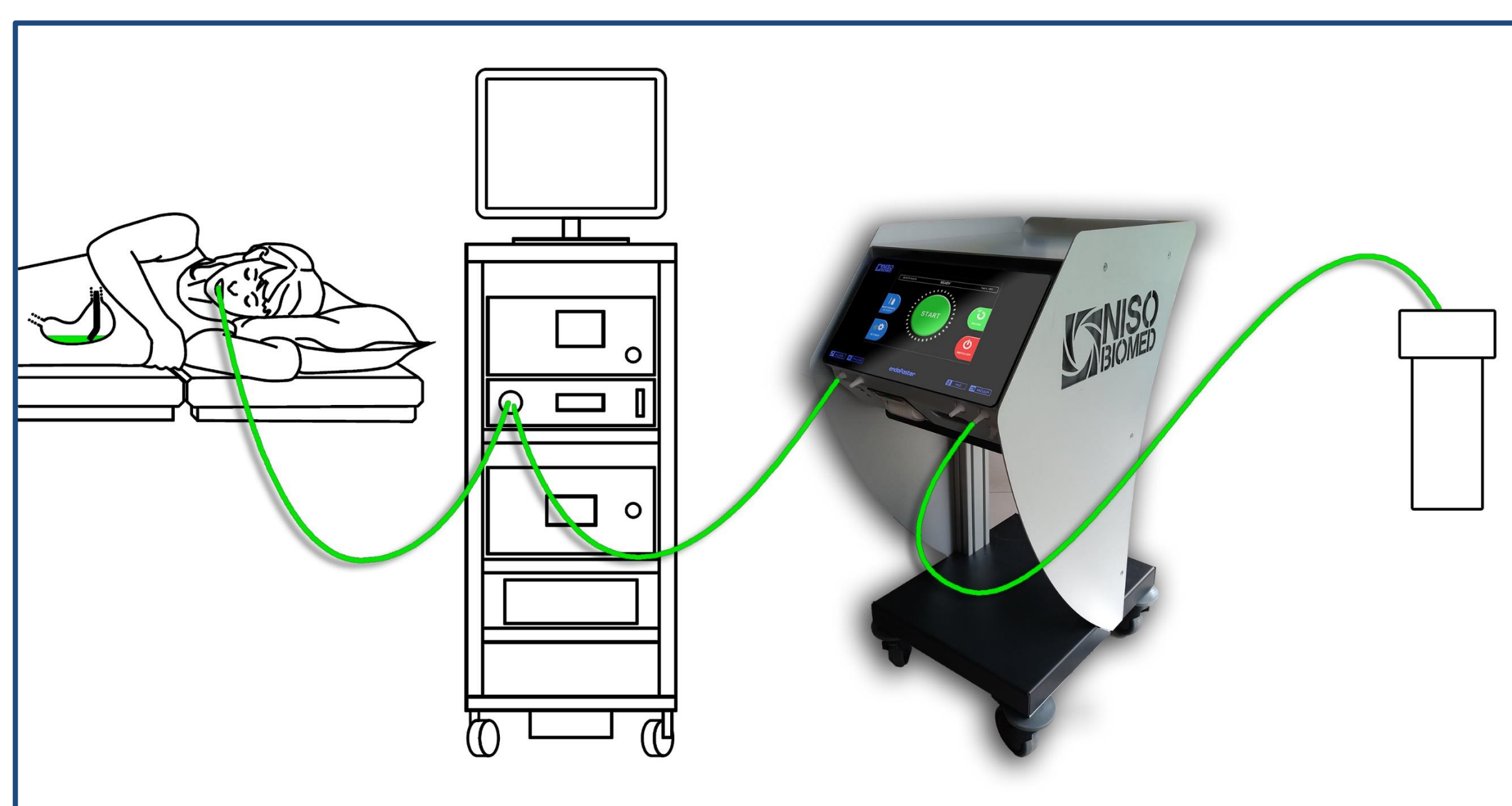
### 3. data processing and statistical analysis:

For the data processing, some assumptions were made, such as the average number of patients in the hospital, the percentage of patients on which the doctor performs histological analysis and the number of biopsic samples that are collected.

The different times have been normalized to allow a quantitative comparison.

## About endofaster

endofaster is a high precision portable chemical laboratory. This technology analyzes gastric juice in real time during a gastroscopy providing important information for a more accurate diagnosis.



Picture – endofaster working Scheme

It has been proved to reduce the number of histologies, by focusing the attention of the endoscopist on the high-risk patients thus limiting the biopsies on the low-risk ones. Furthermore biopsies for H.Pylori detection become unnecessary, when performing gastric juice analysis with endofaster.

This reduction has been confirmed in the HTA analysis carried out by the Italian Ministry of Health.

## Results

### Aim 1:

The 20 activities (table) that were identified in this study can be divided into 4 phases: sampling, preparation of the samples, managing of the report and delivering of the report to the patient.

### Aim 2:

To evaluate how much would a 30% reduction of the number of histologies impact on the working time of the nursing team, it's been considered which ones of the 20 activities depend on the number of biopsies performed.

It was found out that 18/20 are strictly related to the number of histologies, and just 2 activities are performed regardless of how many histologies, therefore the time associated to them is fixed and cannot be reduced.

The total time related to each patient (not taking in account activity n. 10 and 11 which are independent on the number of histologies) has been proved to be 45 minutes, shared between the nursing team. Considering to take biopsies on 5 patients per day it results in 225 minutes per day:

$$\text{daily time related to histologies} = 45 \text{ min} \cdot 5 \text{ patients} = 225 \text{ min}$$

Assuming a 30% reduction (introduced by endofaster as proved by the HTA carried out by the Italian Ministry of Health) in the total amount of histologies the time saved by the nursing team results in 67.5 minutes per day.

$$\text{daily time savings} = 225 \text{ min} \cdot 30\% = 67.5 \text{ min}$$

### PHASE 1 - Sampling

average time per patient: 4.7 min

1. Sample biopsy with forceps
2. Drop the samples in the vial/tube
3. Drain and wipe the forceps after use
4. Seal the container of the sample
5. Prepare the labels with patient data and location of the exam

### PHASE 2: Sample Preparation

average time per patient: 7.5 min

6. Prepare the requests for the histological analysis (2+ sheets)
7. Fill out the log-sheet for traceability of the biopsies
8. Prepare the form for the payment of the test
9. Prepare the form for the patient to collect the report
10. Deliver the samples to the pathologist \*

### PHASE 3: Handling of the Report

average time per patient: 18.3 min

11. Pick up the histological report from the pathologist \*
12. Make a copy of the report (if the pathology department is external)
13. Fill out the log-sheet for traceability of the samples
14. Sort the exams for each doctor
15. Analyze the final report and choose the proper therapy [doctor]
16. Hand the therapeutic indications to the nurse

### PHASE 4: Report – Pick-Up

average time per patient: 14.6 min

17. Check the identity of the patient or designated person
18. File the proxy-designation-form
19. Have the patient signing the log-sheet
20. Give further explanations and assistance to the patient

\*: these activities were not taken into account for the total time

Table – list of the activities related to histological analysis

## Conclusion

The study points out the complexity of the nursing activities related to histological analysis, and confirms the significant effort of the nurses. The second part highlights the impact that new technologies, such as endofaster would have on the workload of the nurses leading to a time reduction of 67 minutes. Overall, it is clear that the workload related to histologies is not negligible, and its reduction would potentially lead to a more efficient department and remarkable savings.