



## A new archiving system for the brain biobank in Vigo (Spain)



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### Introduction

- The Biobank in Vigo has a collection of more than 200 cases of neurodegenerative brain diseases. For each case they have archived one frozen brain hemisphere and the other hemisphere fixed in formalin and used for neuropathology diagnosis. Until now, the excess of fixed tissues was archived following a traditional method that is storing them in a plastic container (Tupper). This container, despite it is practical, it's not totally hermetic therefore it's very much possible to have formalin leak (being formaldehyde irritant and human carcinogenic agent).



- Storing tissues under vacuum is a largely used method to transport and manage cases and to control the formaldehyde exposition in the Anatomical Pathology service.

- The Biobank in Vigo modified its cases handling system, substituting the plastic containers with vacuum bags system.



### Aims

- To present the under vacuum system to manage brain tissues, fixed in formalin in operation at the Biobank in Vigo.

### Material & Methods

- It has been used a vacuum unit with bags of 22 x 31 cm, double layer PA/PE 135 microns thick. The formalin quantity every bag can take is calculated by the system, according to tissue weight. Every bag has three sealing zones.

- To avoid formaldehyde toxic fumes inhalation, during the process the operators worked under a fume extraction hood. Bags under vacuum were stored in a vented air filtering cabinet.



Procedure of samples change in the vacuum bag

### Results



Muestras envasadas al vacío

- 50 of the older cases from the whole collection have been vacuum so far, avoiding dealing with infective cases (Prionopatía). Those will be the last cases processed with the under vacuum systems, with the target to get the procedure ameliorated at its best before their manipulation.

- The possibility to seal bags up to three times gave the possibility to obtain more tissues if necessary, even once the case closed, without throwing away the original bag.

- Our initial target was also to minimize the exposure to carcinogenic fumes and optimize archiving space.

### Conclusions

- The implementation of the vacuum system improved considerably the Biobank in Vigo, because it largely avoids BioBank personnel exposure to toxic and genotoxic formaldehyde fumes.

- Since no formalin evaporation takes place, formalin chemical properties are preserved in the vacuumed bags and tissues stored under vacuum preserve a higher level of quality compared to tissues processed with our previous method.

