

FNA SAMPLE PREPARATION

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The three Qs

Quantity

enough sample to make a diagnosis!

Quality

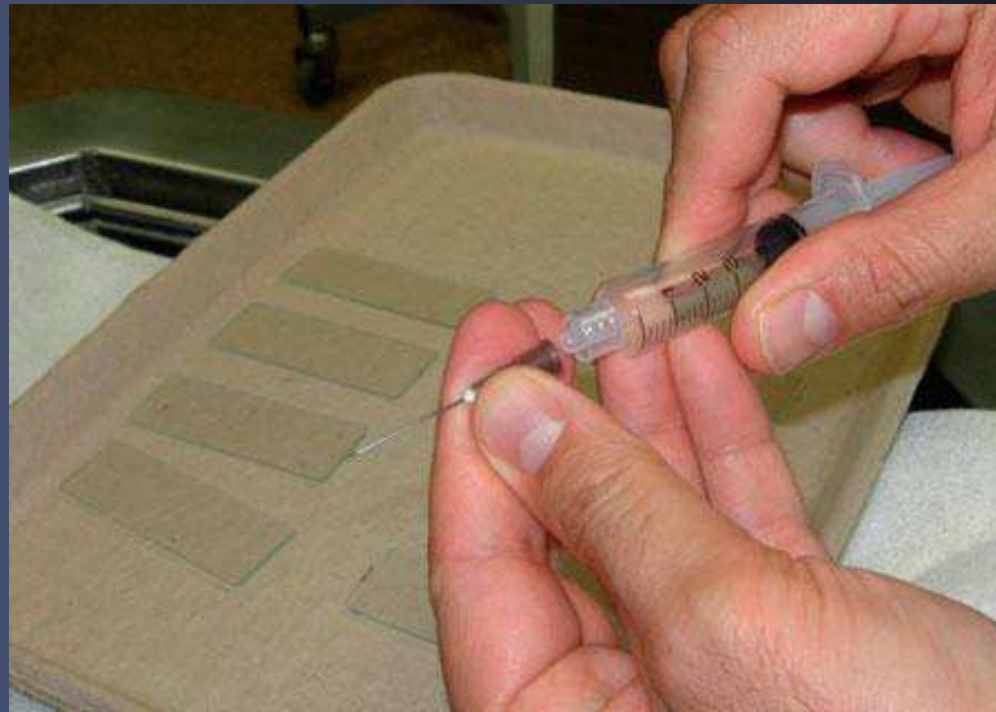
preventing poorly spread or crushed cells

Questions!

is there a clear clinical question being asked?

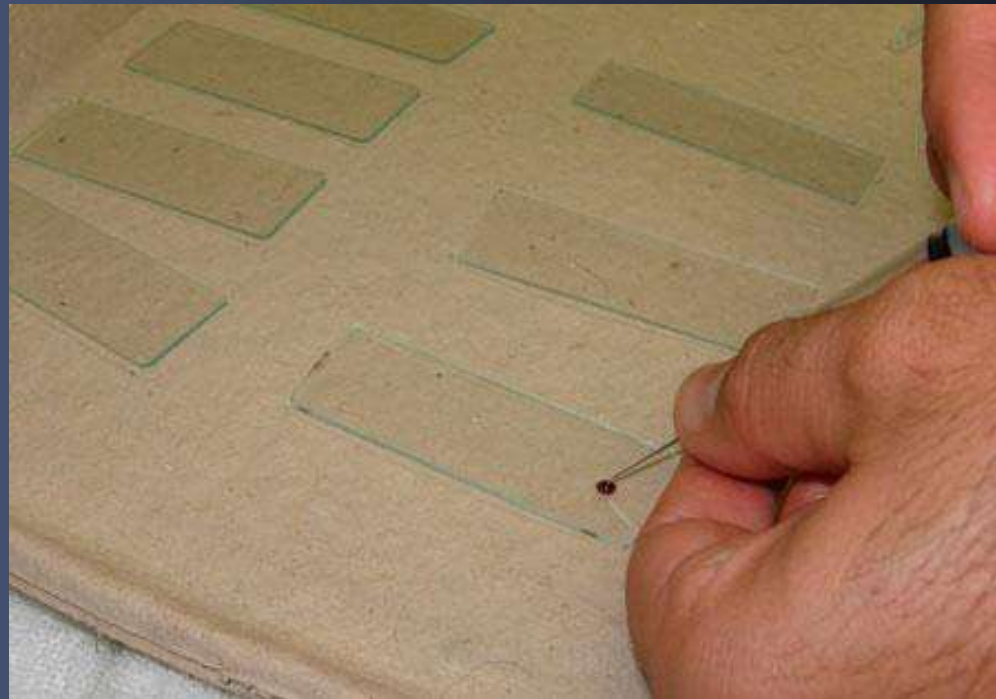
Is FNA the right test for this clinical question?

Air-dry slide preparation technique



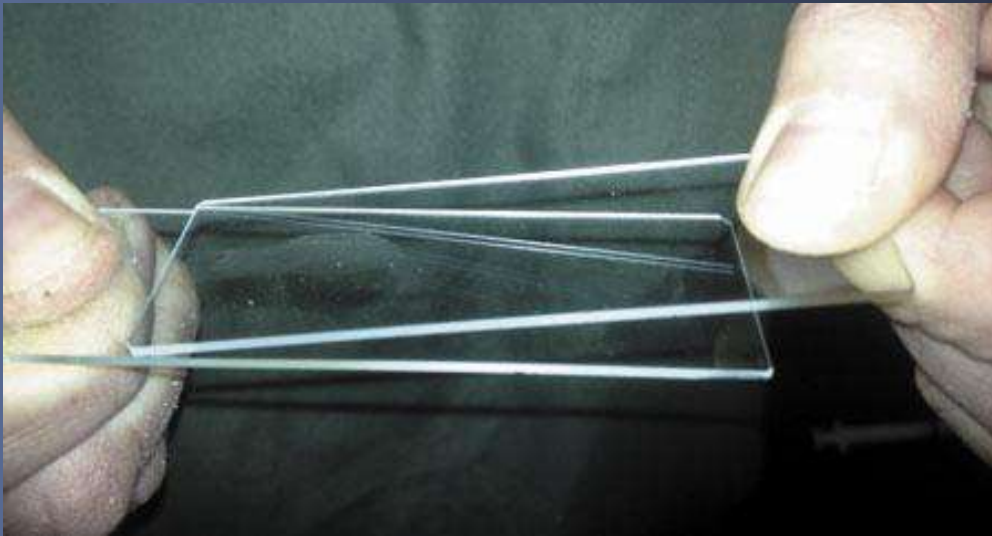
add an air-filled syringe to the needle (containing sample in barrel and hub)

Air-dry slide preparation technique



aspirate the sample with the needle touching the slide to prevent spatter, a cm or so away from the frosted end of the slide

Air-dry slide preparation technique



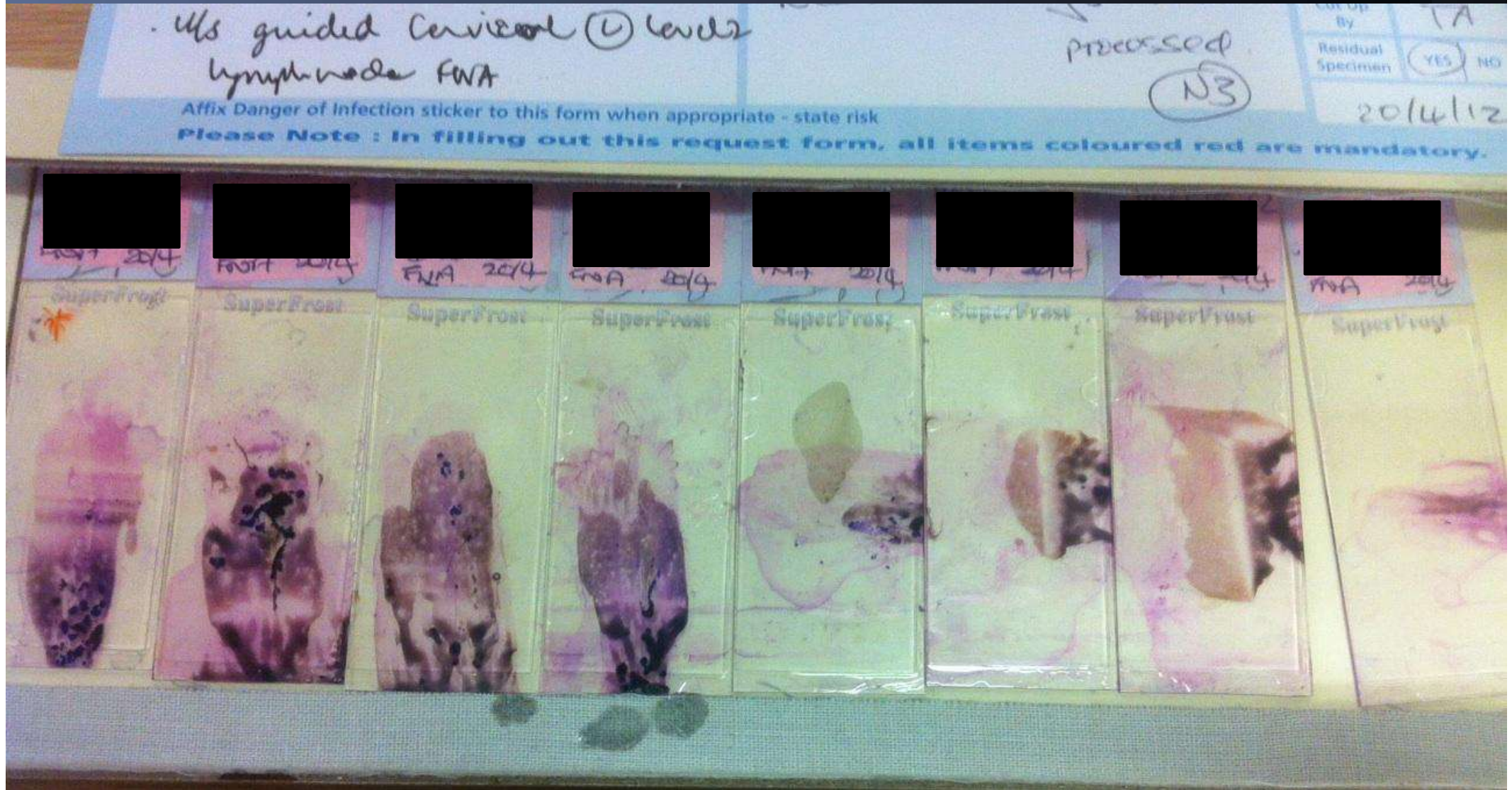
"float" one slide onto the other and gently glide to produce an evenly spread, egg-shaped monolayer

See <http://www.papsociety.org> for technique video

Quantity - don't waste it!



There is never a valid excuse to do this



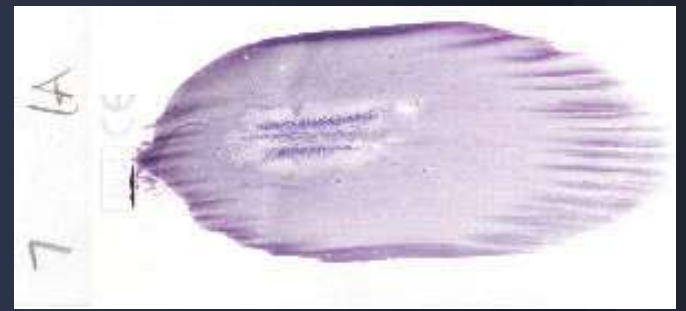
Quality - what is this?



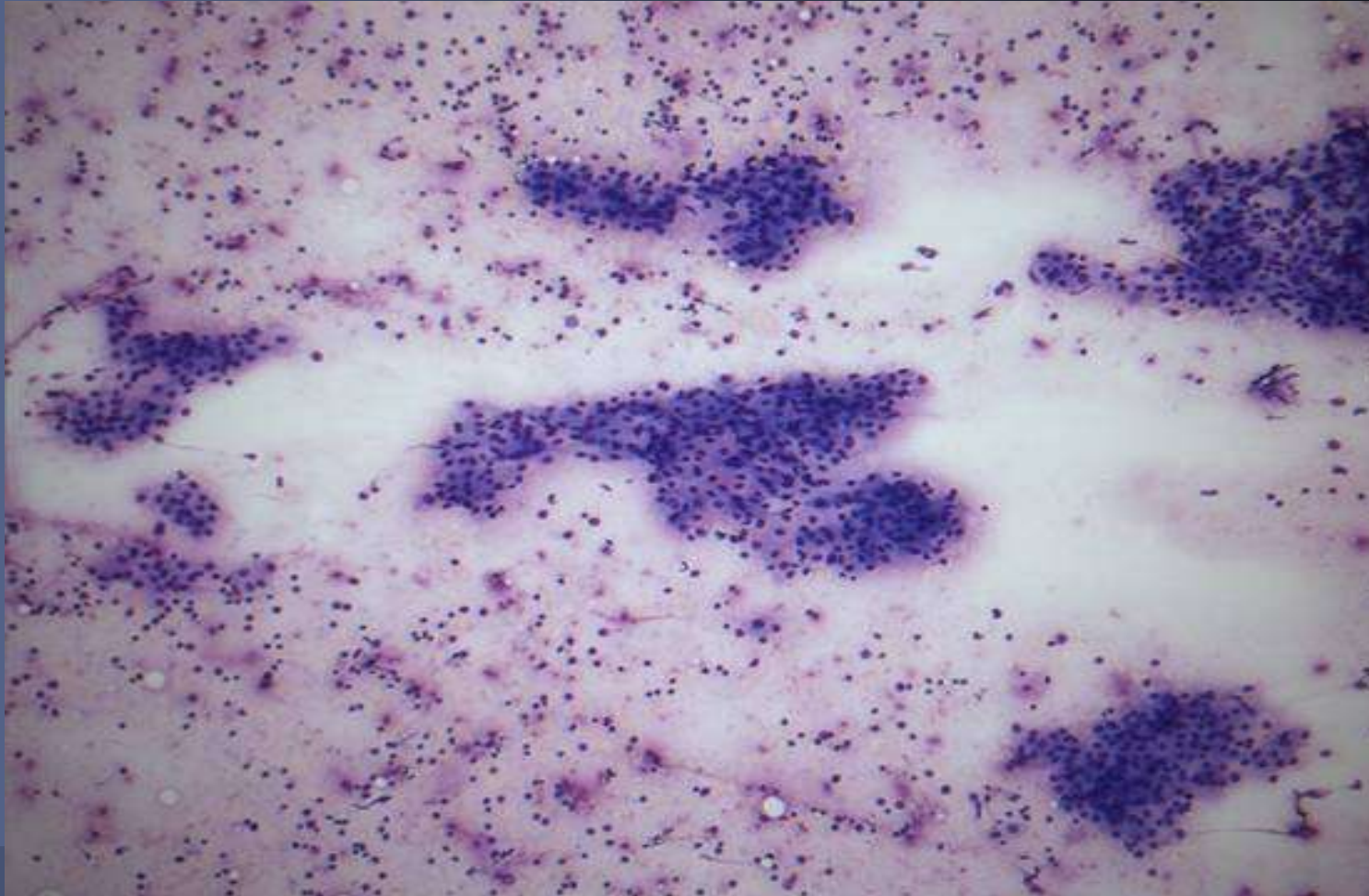
Quality - what is this?



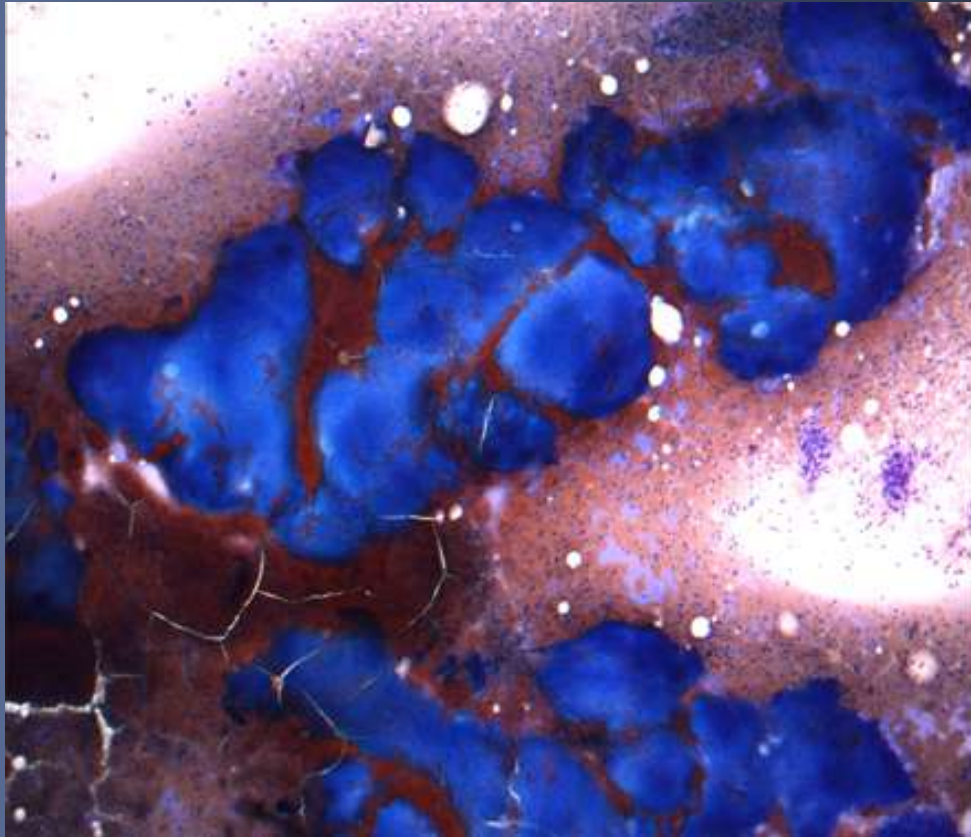
Quality



The aim is to produce a smooth, egg-shaped monolayer



Quality - what not to do



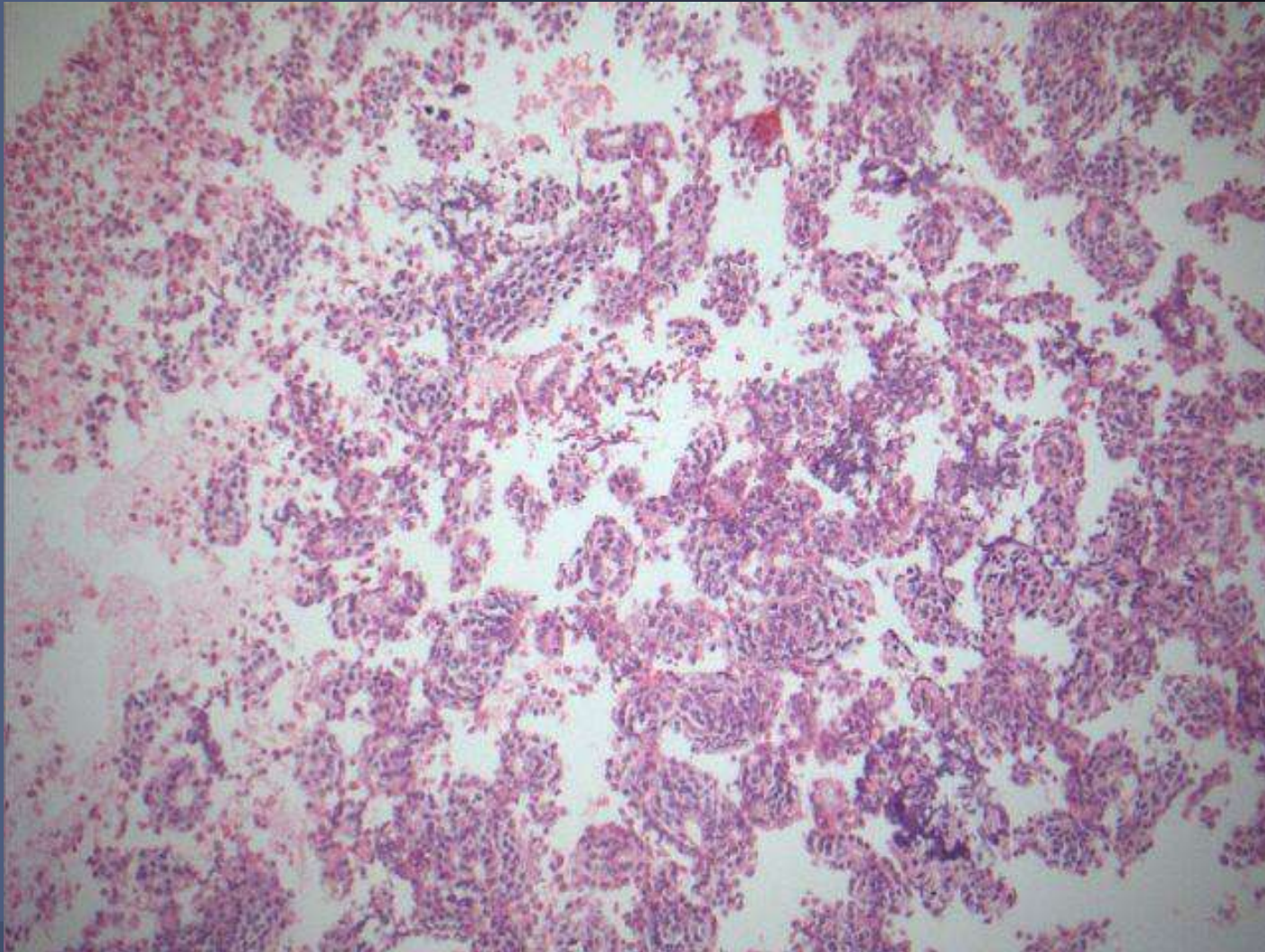
poorly spread thick clumps



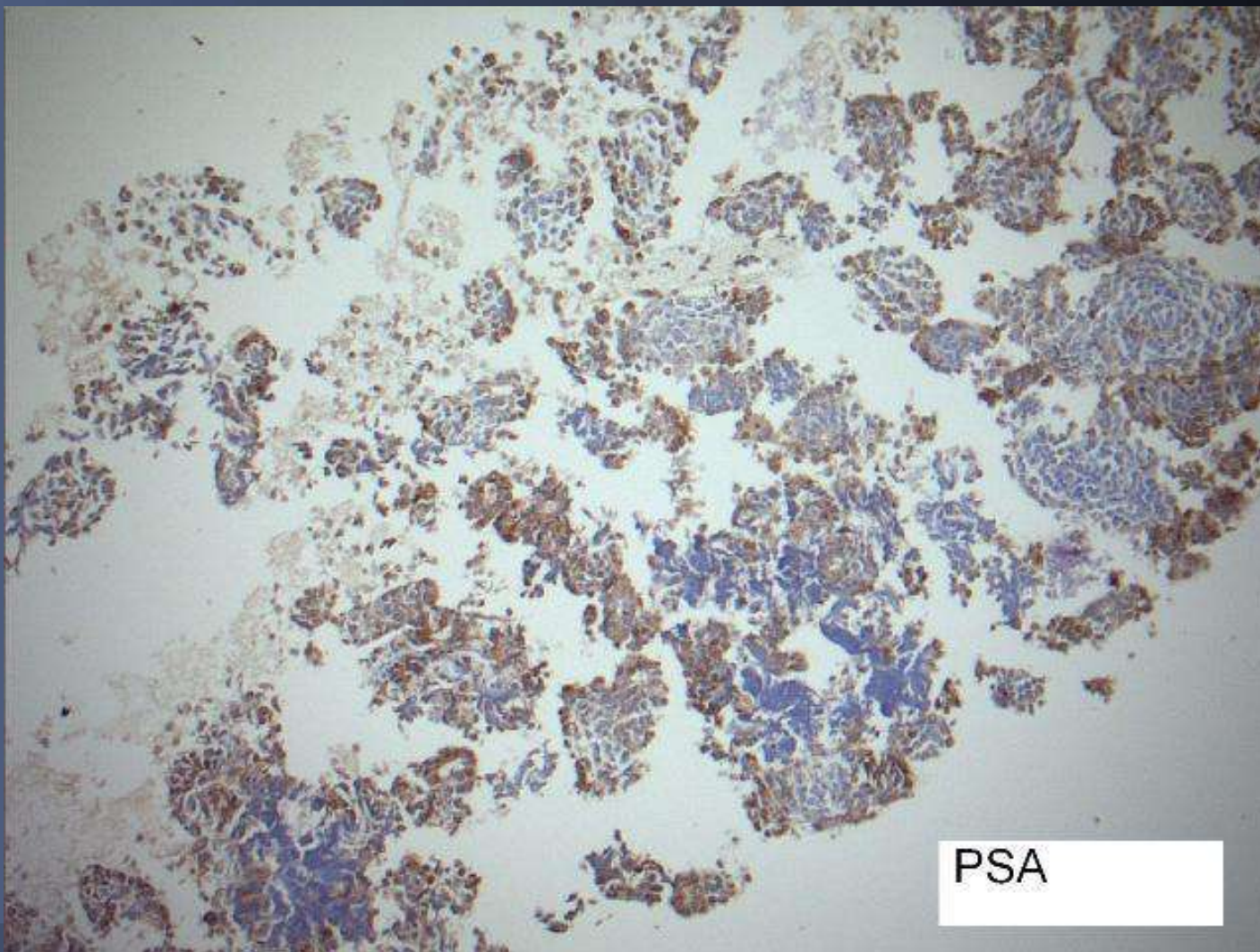
crushed and overspread

NB. if in doubt, put the whole sample in needle washings solution and we will sort it out

Quantity AND quality



Quantity AND quality



Question!

- What is the clinical question being asked?
- H&N cytology best at confirming recurrence
- or confirming metastasis from a known primary (carcinoma, MM, sarc, lymphoma)
- May not be appropriate for primary diagnosis
- Increasingly good at providing genetic material for predictive tests (eg. EGFR, HER2)
- Useful for anatomically difficult sites

The poor man's cell block

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ABSTRACT

The authors describe a simple method for making formalin or isopropyl alcohol vapour fixed cell blocks from fine needle aspiration cytology specimens that we refer to as 'The Poor Man's Cell Block.'

The utility of fine needle aspiration cytology can be enhanced by the collection of cell blocks for immunohistochemistry and other molecular studies. We describe a method for making vapour fixed cell blocks that we have developed over the last 10 years. This technique, which we refer to as 'The Poor Man's Cell Block,' requires no equipment or reagents that are not available in an outpatient department or a radiology department. It has developed from a method that we first described in 2003.¹ The material is expelled from the fine needle aspiration needle to form a blob on the inside of the inverted lid of a universal container (figure 1). Sometimes the specimen is expelled as several blobs. These can be shepherded back into a single larger blob by an 'air-football' technique using puffs of air from the now empty needle and syringe. The lid is left inverted while a ball of tissue paper is pushed into the bottom of the universal container. A small amount of formalin, about 2 ml, is added to the container and soaks into the tissue paper.

container. The container is screwed on to the inverted lid. The container is then left in the inverted position for at least 6 h at room temperature. By this time, the specimen has been fixed by the vapour and has become solid. It can be prised off the lid of the container with the edge of a scalpel and processed as if it were a biopsy. The specimen is best removed by first flooding the lid with a small amount of formalin so as to gently break the 'limpet' suction between the specimen and the lid. It is important not to let the specimen dry out once it has been removed from the lid, as this makes the specimen hard to section and causes cellular artefact. It should be cassetted and immersed in formalin as soon as possible. The use of isopropyl alcohol swabs is arguably preferable to the use of formalin, as handling formalin is considered to be more hazardous, and isopropyl alcohol vapour appears to fix the cell block more rapidly than formalin vapour. In addition, formalin vapour fixation may give rise to prominent formalin pigment. However, alcohol fixation of any type of cytology specimen should not be used without regard for the changes in immunohistochemical methods that are then required. Formalin-fixed control sections are no longer appropriate, and different antigen retrieval methods may be needed. For this reason, formalin vapour fixation is probably the more practical method. The cell block method described above

Poor man's cell block technique

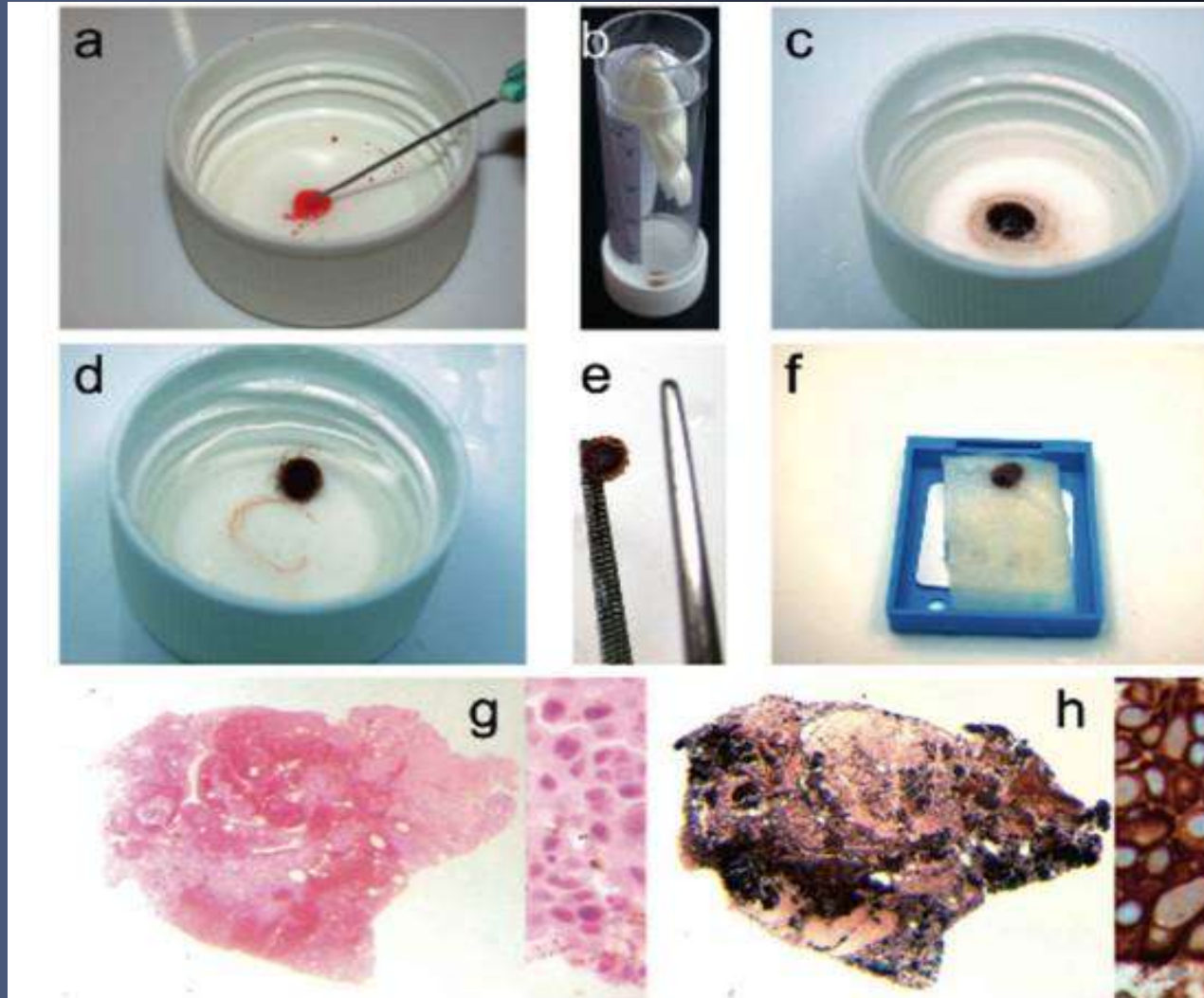


Figure 1 Images demonstrating the main steps in the preparation of a vapour fixed cell block. (A) The fine needle aspiration material is expelled from a blob. (B) The universal container is left inverted for at least 6 h to allow the material to vapour fix. (C) The material is now solid. (D) The lid flooded with a small amount of formalin so as to help gently break the "impet" suction. (E) The solid cell block can be picked up, being careful not to let it dry out. (F) The specimen should be wrapped in tissue paper for processing. (G) H&E section showing the low-power appearances and high-power detail (metastatic breast carcinoma). (H) Low-power appearances and high-power detail of a cyokeratin 7 immunostain showing that the cells are densely distributed in the cell block.