

An Audit of Pleural Fluid Sampling and Diagnostics at James Cook Hospital, Middlesbrough

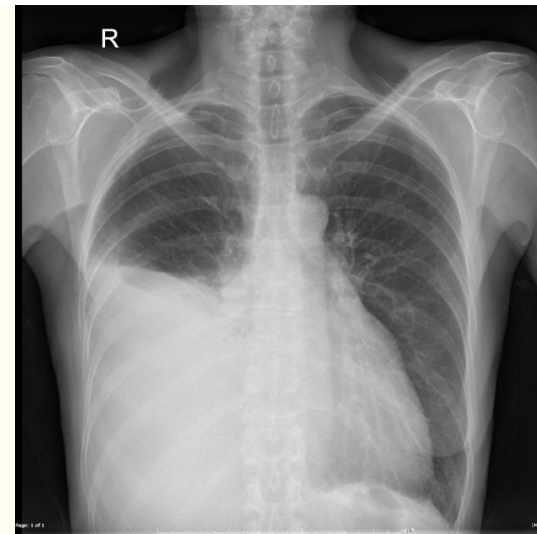
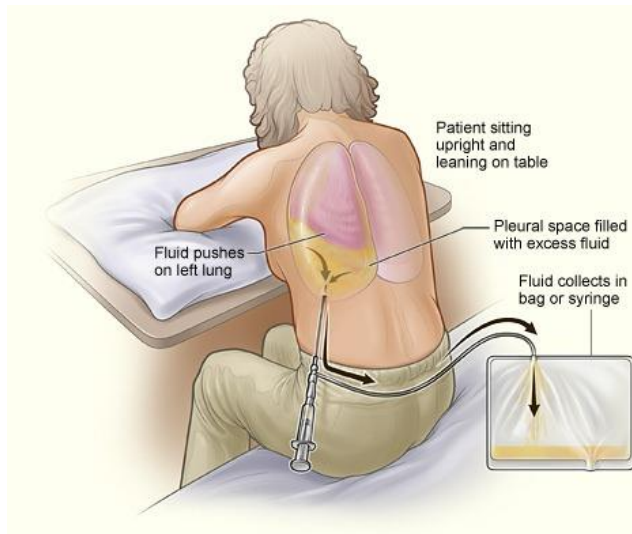
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Background: Pleural Fluid Cytology

- If respiratory malignancy is suspected in a case of pleural effusion, pleural fluid cytology is a quick and minimally invasive technique to obtain a diagnosis
- Yield from sending more than two specimens (taken on different occasions) is low and should be avoided
- The diagnostic yield for malignancy depends on
 - Sample preparation
 - Experience of the cytologist
 - Tumour type



Cytology Processing

- Up to 40mls sampled
- One ThinPrep PAP, one cytocentrifuge Diff-Quick slide prepared
- Clots are processed in histology
 - H&E
 - Special stains (intracellular mucins)
 - Immunocytochemistry/ICC (tumour type)
- Cell blocks are requested in equivocal cases or where malignancy is suspected to identify cell/tumour type



Background of Audit Topic

- Clinical perception at local MDT that pick-up rates for pleural fluid malignancy was low (June 2012).
- Laboratory perception that many pleural fluid (PF) samples received were of lower volume than the 20-40mls recommended by British Thoracic Society (BTS) Guidelines 2010.
- Lead Pathologist circulated the current BTS Pleural Disease guidance to sample takers.
- Laboratory agreement to include a low volume comment when samples received are less than that recommended by the BTS .

Aims of this Audit

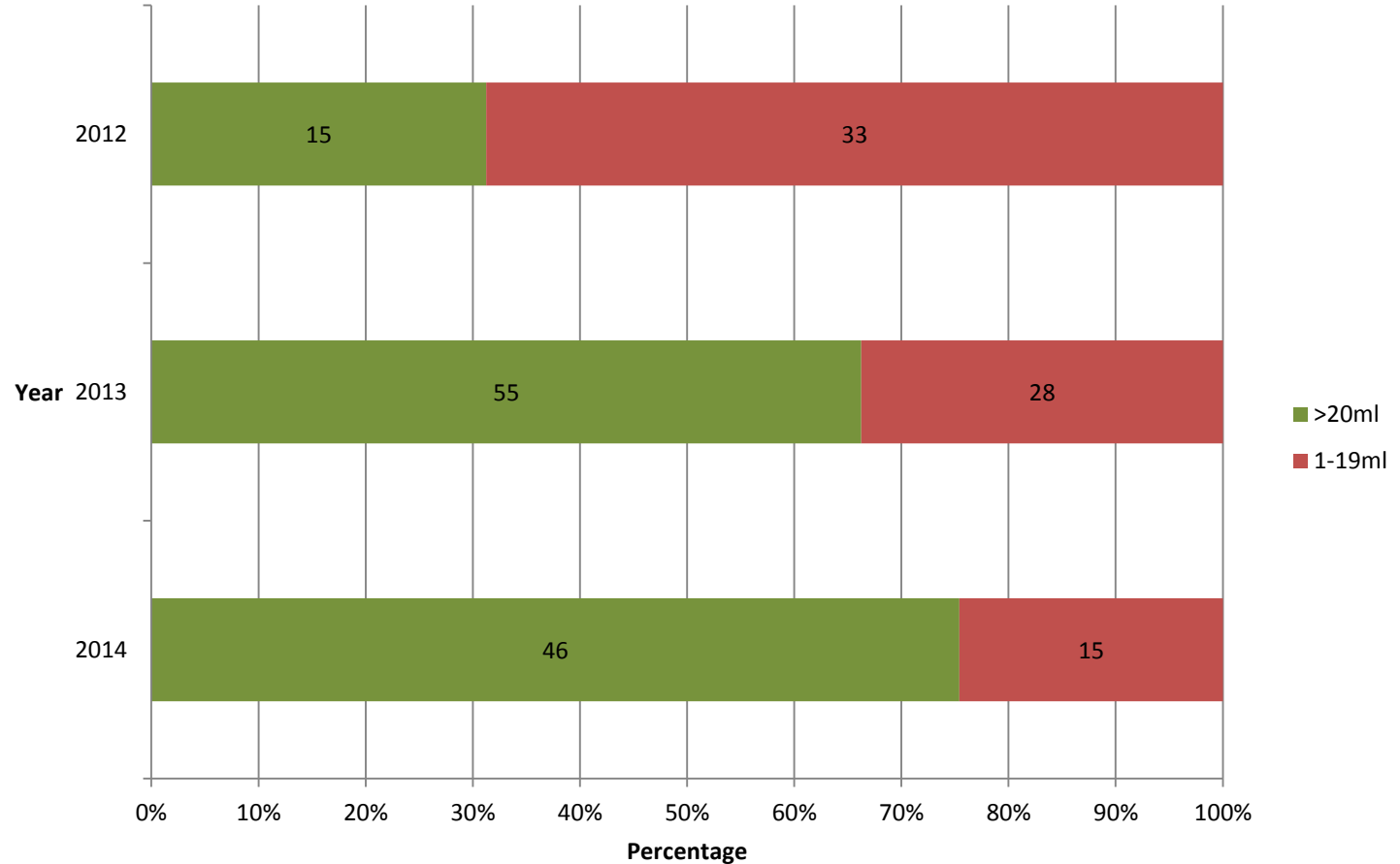
- An audit of pleural fluid sampling and reporting, with four arms, undertaken in a agreed fixed study periods from 2012-2014
 - Determine the proportion of sufficient and insufficient volume PF samples received in a fixed study period
 - Determine the impact of circulating the BTS guidelines to clinicians involved in PF sampling
 - Determine any change in malignancy pickup rate
 - Determine the compliance with an agreed canned comment for insufficient PF samples

Data Collection Method

- iLab database search (DBQ)
- Figures
 - Range of volumes of pleural fluids, pre-intervention over a 3 month period starting June 2012 in comparison with 3 months from June 2013 & 2014
 - Can we then demonstrate an increase in malignancy pick up rate over 6 month periods June – December 2012, 2013 & 2014
- Laboratory compliance of using minvol canned code when volume received <20mls
 - June – Aug (Dec) 2013
 - June – Aug (Dec) 2014

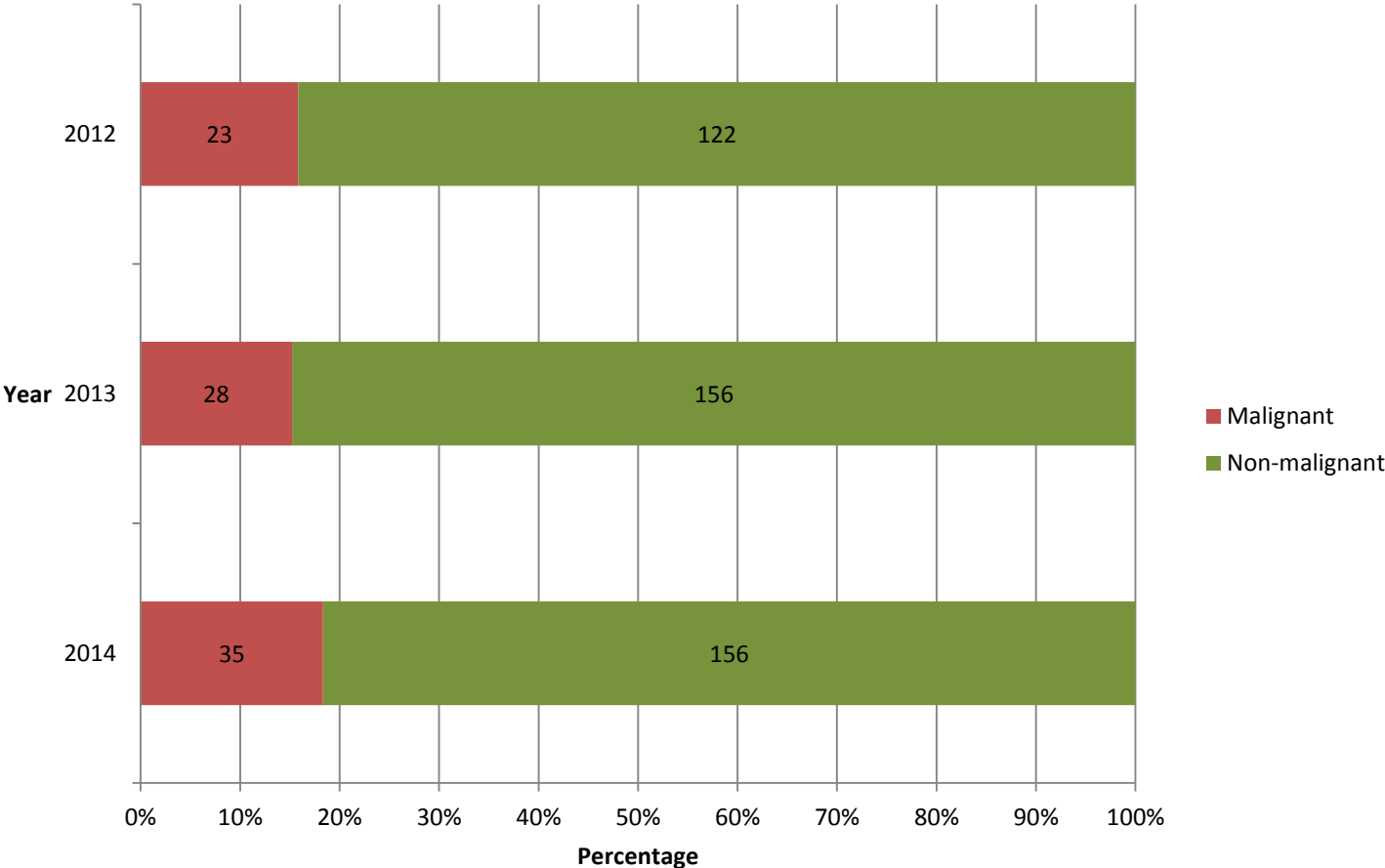
Results

The Proportion of acceptable (≥ 20 ml) to unacceptable (1-19ml) pleural fluid volume samples received in the months of Jun-August (2012-2014)



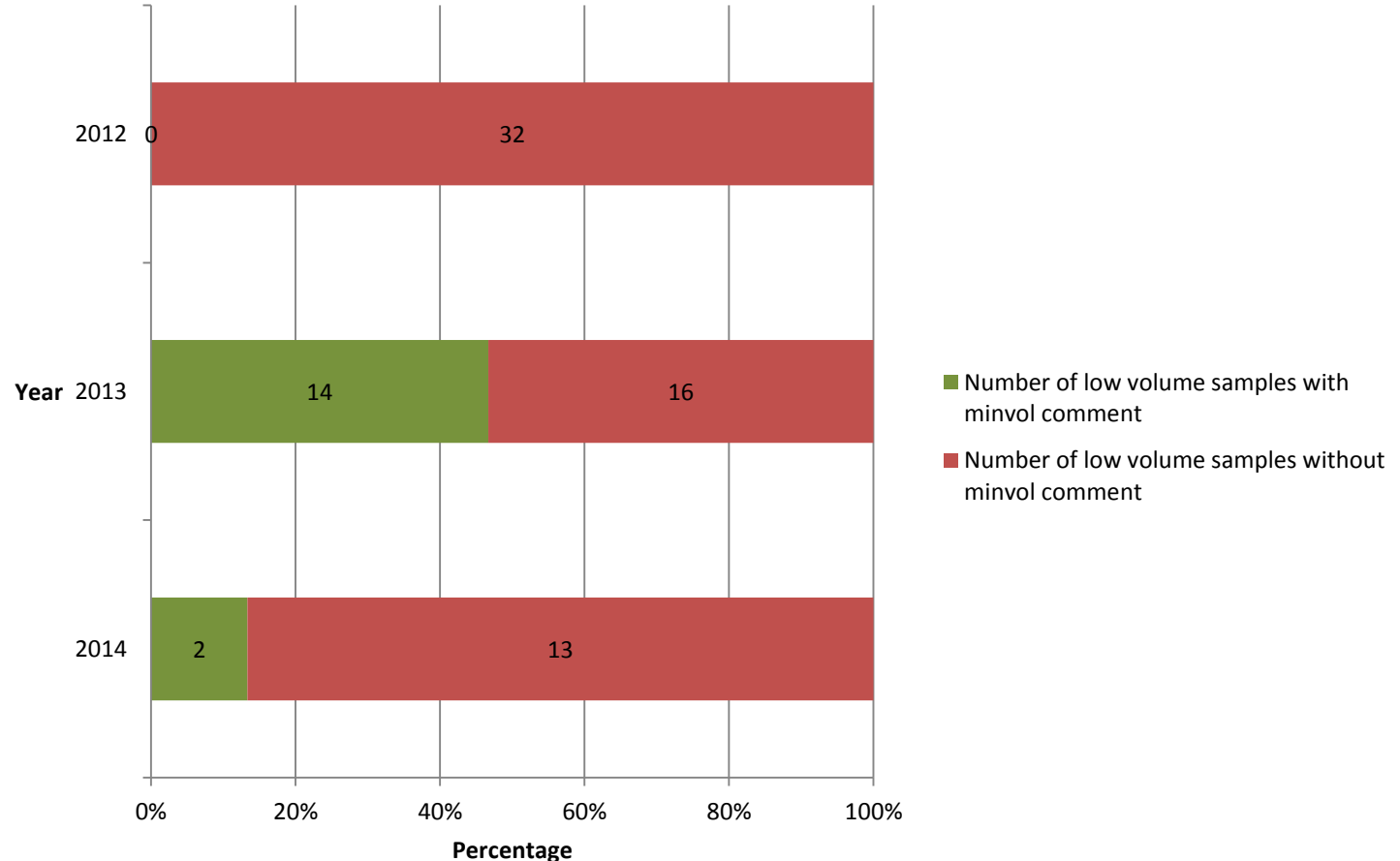
In the fixed June-August period from 2012-2014, there has been an improvement in that 30% of PF samples received were of sufficient volume to around 75%

Graph to show proportion of malignancies detected in pleural fluid samples between the months of June-December 2012-2014



In the fixed June-December period from 2012-2014, there has been a small increase in the number of malignancies detected in PF samples, from 16% to 19%

Graph to show proportion of low volume samples labelled with canned minvol comment in each August (2012-2014); NB Canned comment not in use during 2012



In 2012 a canned comment for minimum sample volume was not in use; Implemented in 2013 the code was included in >40% of minimal volume PF specimens, but 2014 was only included in ~13%

Conclusions

- In the study period, sufficient volume of PF sample has increased from 30% to around 75%
- The intervention of distributing PF volume sample guidance appears to have had a positive effect
- There has been a small increase in the number of malignancies detected in PF samples from 16% to 19% (19% increase), but a 31% increase in PF samples received in the fixed study period in 2012-2014
- A canned reporting comment was not in use in 2012. Despite inclusion in ~40% of minimum volume PF samples in 2013, this dropped to ~13% in 2013

Future

- Re-circulating pleural fluid volume sampling guidance to acute medicine and respiratory divisions
- Re-communicate use of the minimum volume comment to lab staff
- Re-audit following these further interventions

End