Elevated hounsfield units and large tumour size on radiological imaging are both suggestive of functionality in incidental adrenal tumours

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Introduction
• Widespread use of CT and MRI has led to an increase in the number of incidentally discovered adrenal masses.
• These patients are often subject to a battery of investigations – frequently normal and a drain to resources.
• Official guidelines are non-existent in the UK. A suggested investigatory pathway based on a National Institute for Health (NIH) algorithm is shown below.
• We set out to investigate the relationship between tumour characteristics on imaging and biochemical functionality.

Results
• Functional tumours include 2 phaeochromocytomas & 2 adrenocortical carcinomas.
• Correlation coefficient between HU and size was 0.32.
• 24hr catecholamines and urine free cortisol were more commonly abnormal in functional tumours.
• Lack of statistical significance is most likely related to small sample size.

<table>
<thead>
<tr>
<th>Tumour</th>
<th>HU</th>
<th>Size mm</th>
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</thead>
<tbody>
<tr>
<td>Functional</td>
<td>64.35 + 10.34</td>
<td>68.25 + 45.39</td>
</tr>
<tr>
<td>Non-Functional</td>
<td>38.29 + 31.47</td>
<td>23.76 + 8.02</td>
</tr>
<tr>
<td>P-Value</td>
<td>0.13</td>
<td>0.11</td>
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</tbody>
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Conclusions
• Our data suggests that tumours with size > 25mm, and HU > 40 are suggestive of functionality.
• This will allow for better selection of patients that need extensive investigation.
• Larger studies are needed to more accurately set thresholds for further investigation.

Methods
• Retrospective case note study of 17 patients who had CT scans and biochemical investigations between June 2009 and January 2013.
• Mean age 68yrs, 8 male, 9 female.
• Patients were grouped into functional (n=4) and non-functional (n=13).
• Radiological features – Hounsfield Units (HU) & Size mm - were analysed, expressed as mean + SD.