

# TAG Audit of Add-on Test Requesting

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# Background

- Follow-up to National Add-on Audit.
- Massive demand
- Add-ons unrestricted
- Any location
- Stability of test/s required is not compromised



# Aims

Current Guidelines?

# Method

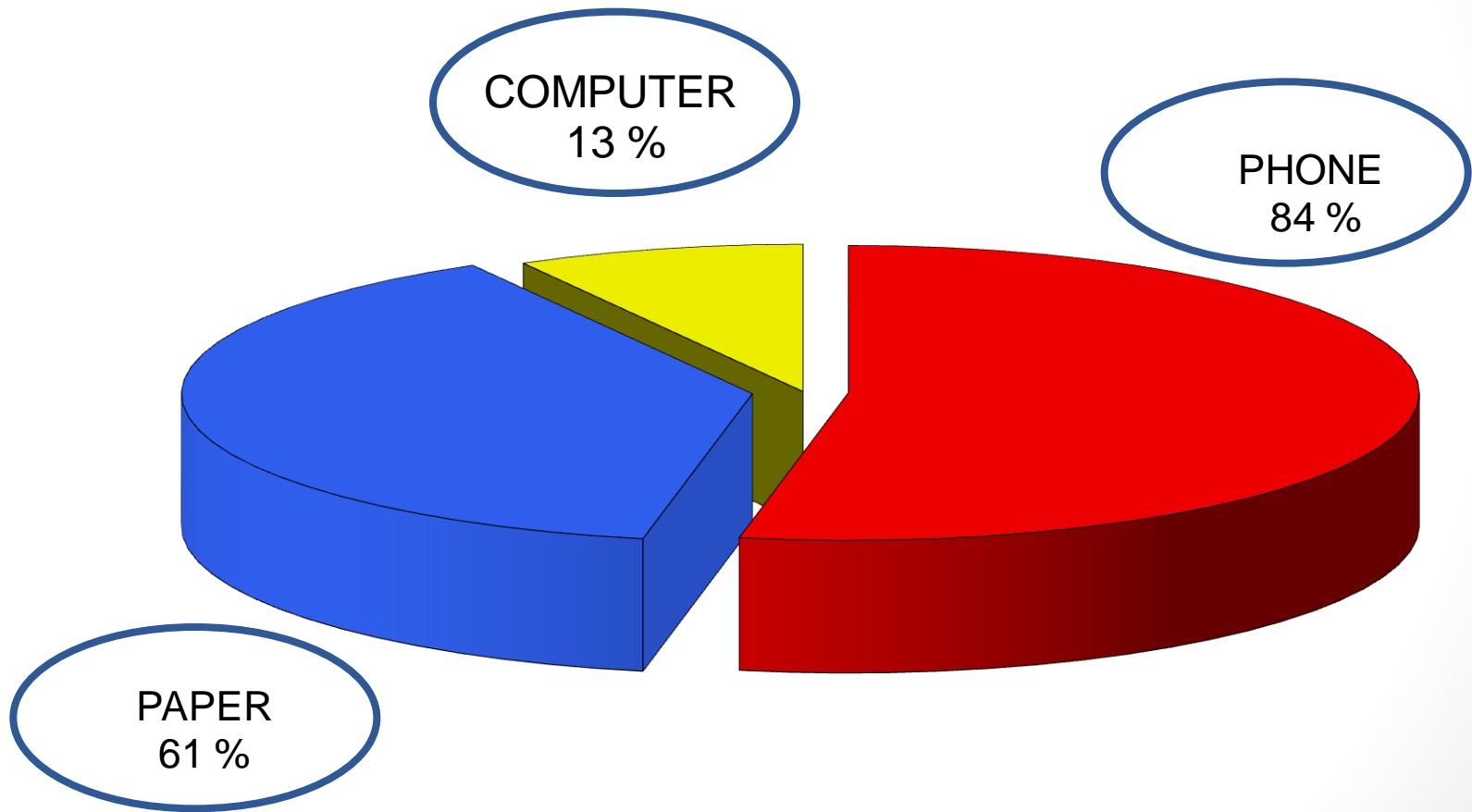
- 57 members of TAG
- Receipt and authorisation of add-on requests
- Frequently requested tests
- Staff involved in processes
- Location of requests
- Protocols for repeat and reflex testing



# Add-on Requests

- No guidelines available for add-on tests
- Compare labs and identify common practice
- Demand Management

# Receipt of Add-on Requests



# Receipt of Phone-call Requests

- Wide range of staff receive requests
- Band 7 BMS (84%)
- Band 6 BMS (81%)
- Band 5 BMS (71%)
- Band 9 Clinical Scientists least likely to receive phone-call requests (23%)



# Receipt of Paper Requests

- Wide range of staff receive requests
- Band 7 BMS (45 %)
- Band 6 BMS (45 %)
- Band 5 BMS (39 %)
- Band 9 Clinical Scientists least likely to receive paper-requests (3 %)



# Receipt of Computer Requests

- Narrower range of staff dealing with requests
- Band 7 BMS (13 %)
- Band 6 BMS (13 %)
- Band 5 BMS (10 %)
- MLA/MLSO (10 %)
- Band 8 BMS, clinical scientists and chemical pathologists do not receive requests



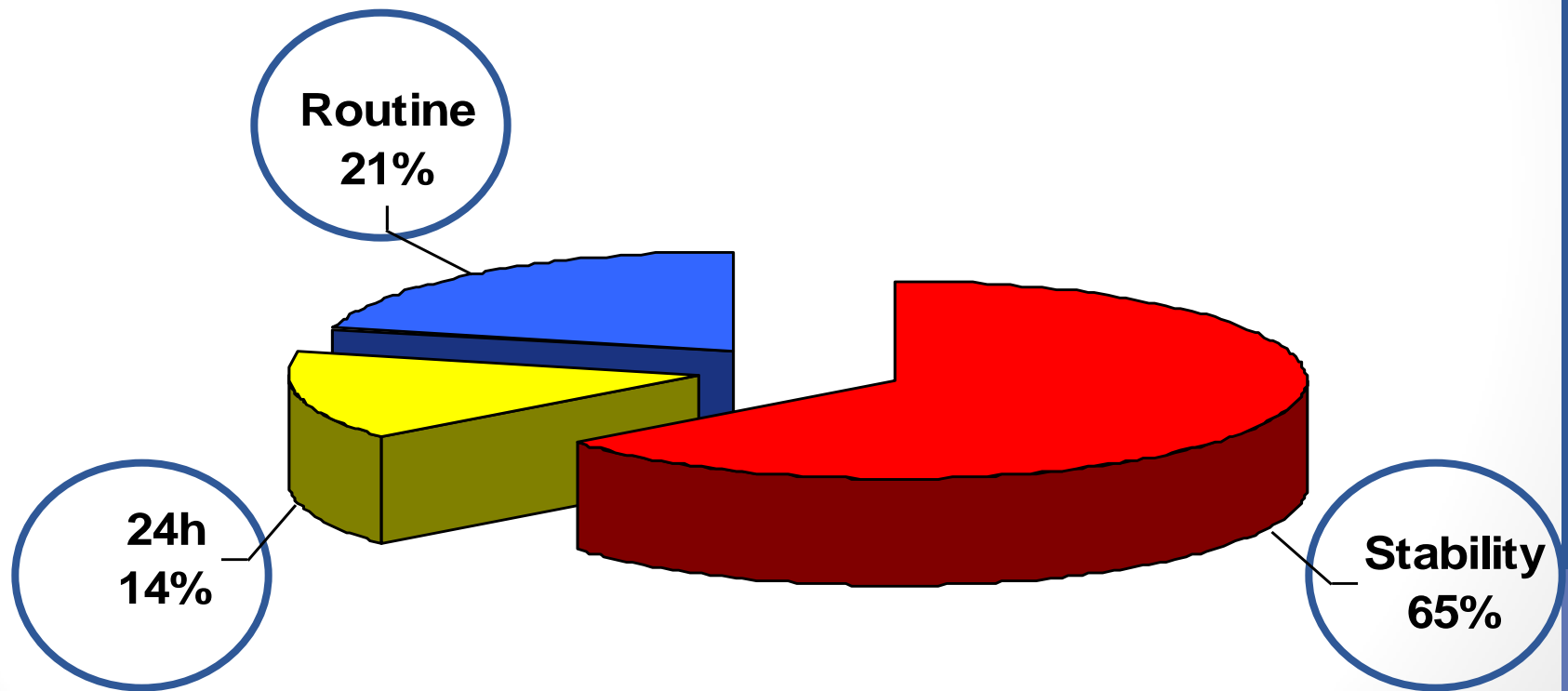
# Authorising Add-on Requests

- Band 6 BMS (77 %)
- Band 7 BMS (74 %)
- Band 8 Clinical Scientist (48 %)
  
- Clerical Officer only member of staff not involved
  
- Aside from clerical officer MLA/MLSOs are least involved in request authorisation (13 %)



# Add-on Test Protocols

- 45 % labs had a protocol for accepting/declining add-on requests

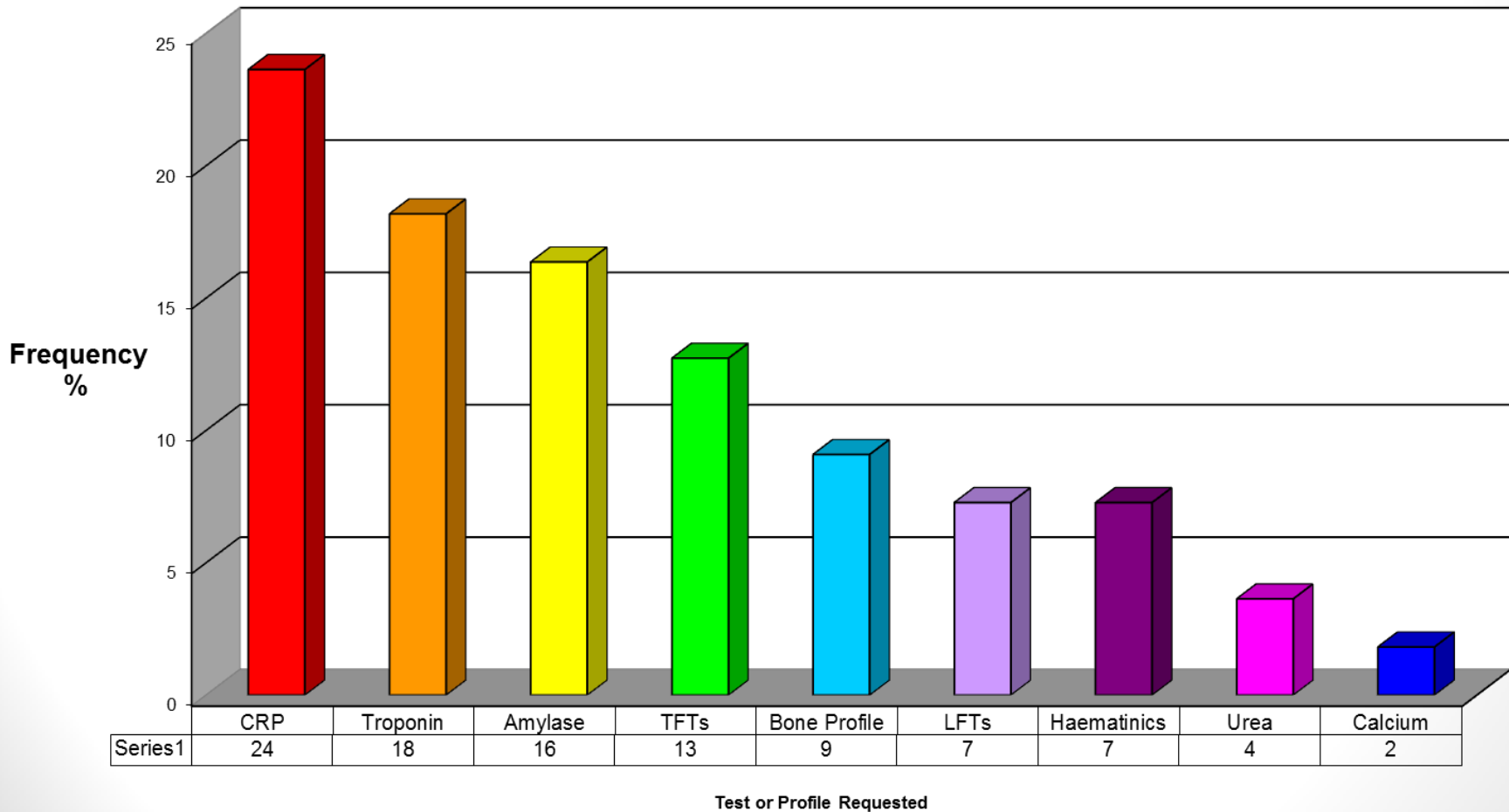


# Add-on Test Protocols

- 42 % labs referred requests to duty biochemist/  
chemical pathologist
- 23 % of these had a routine protocol, so only non-  
routine requests were referred
  
- 87 % labs accepted requests from any location
- 3 % from A&E only
- 10 % from inpatients only
- 3 % from anywhere **EXCEPT A&E**

# Frequency of Add-on Tests

## Frequency of Add-ons



# Repeat Testing: TFT

- (2006) British Thyroid Association Guidelines for the use of Thyroid Function Tests: TFTs may be repeated every 4 weeks to 3 months.
- TSH acclimatisation
- 45 % labs have rules to prevent over-frequency of requesting
- 19 % allowed repeats more frequently than recommended.



The Association for  
**Clinical Biochemistry**

# Repeat Testing: Hba1c

- (2009) NICE Guidelines: Type 2 Diabetes



*National Institute for  
Health and Clinical Excellence*

“1.3.2 Measure the individual’s HbA1c levels at:

- 2–6-monthly intervals (tailored to individual needs) until the blood glucose level is stable on unchanging therapy; use a measurement made at an interval of less than 3 months as a indicator of direction of change, rather than as a new steady state”

# Repeat Testing: Hba1c

(2008) NICE guidelines for diabetes in pregnancy



**NHS**  
*National Institute for  
Health and Clinical Excellence*

“1.1.5.1 Women with diabetes who are planning to become pregnant should be offered monthly measurement of HbA1c.”

# Repeat Testing Hba1c

- 42 % of labs have rules in place to prevent over-frequency of requesting
- 3 % of these allowed repeat requesting more frequently than recommended.
- 19 % of these either prevented repeat requesting within 2 month intervals or did not make an exception for pregnancy/ those planning pregnancy



# Repeat Requesting Ferritin

(2006) Best Practice in Primary care  
Pathology



- “We recommend that re-measurement of ferritin is not necessary. Recovery of anaemia caused by iron deficiency is assessed from haemoglobin levels”

# Repeat Testing: Ferritin

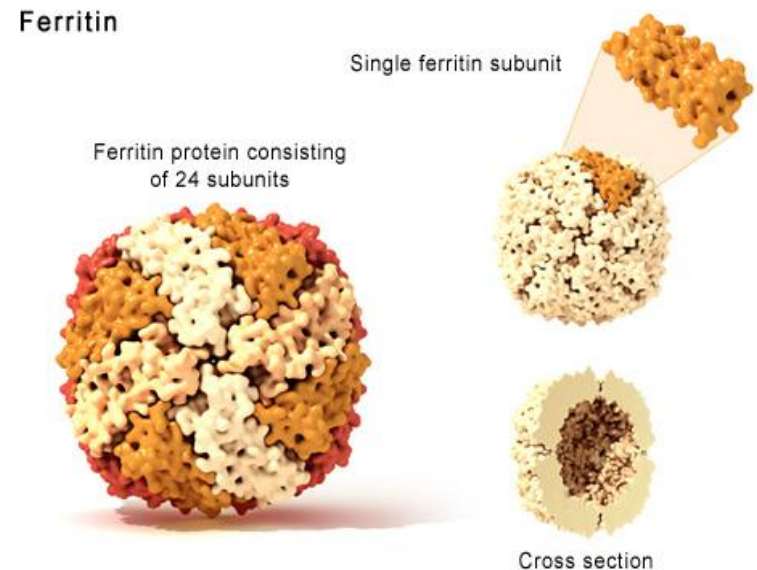
2010 EASL Guidelines: HFE Hemochromatosis



- “When **ferritin levels are high**, measurement is required less frequently (**every 3 months** or so); however, as ferritin approaches the normal range, **measurements should become more frequent.**”

# Repeat Testing: Ferritin

- 39 % labs have rules to prevent over-frequency of repeat requesting
- 16 % labs used recommended cut-off
- 22 % labs allowed more frequent testing
- No rules prevented repeat testing required for haemochromatosis.



U.S. National Library of Medicine

# Repeat Testing: CRP

(2001) **Serial Measurements of C-Reactive Protein and Interleukin-6 in the Immediate Postnatal Period**

## Clinical Chemistry

- A delay of at least several hours is intrinsic to the cascade of events leading to increased serum CRP; therefore, the predictive value of CRP improves with time and is best between **24 and 48 h** after infection is suspected. **Serial measurements** are therefore recommended

# Repeat Requesting: CRP

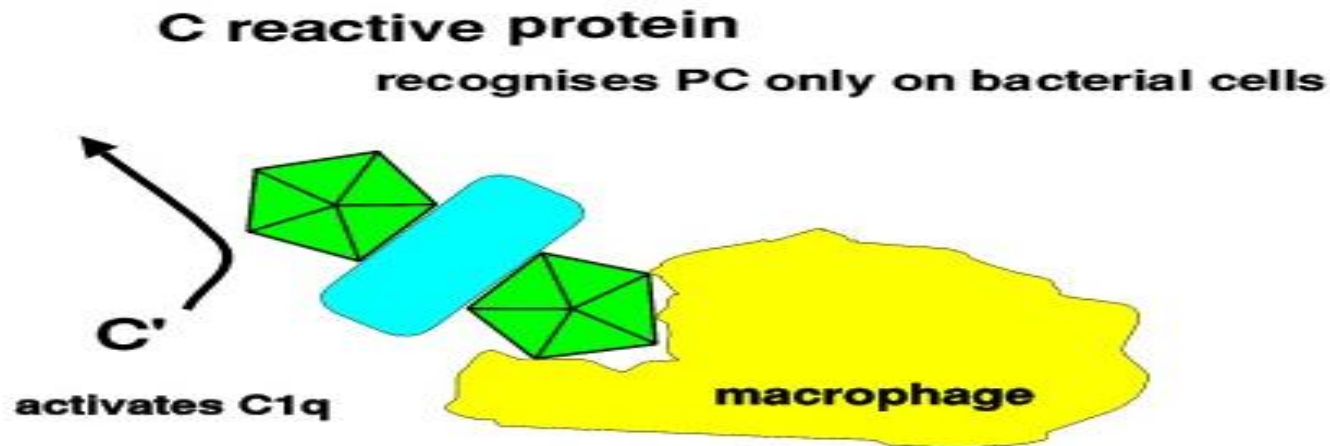
(2009) How to Use: C-reactive Protein

The logo for the BMJ Group, featuring the letters 'BMJ' in a large, blue, serif font, with the word 'Group' in a smaller, blue, sans-serif font to its right.

- “In infants with suspected neonatal sepsis, two CRP measurements 24 h apart are useful in excluding sepsis.”

# Repeat Requesting: CRP

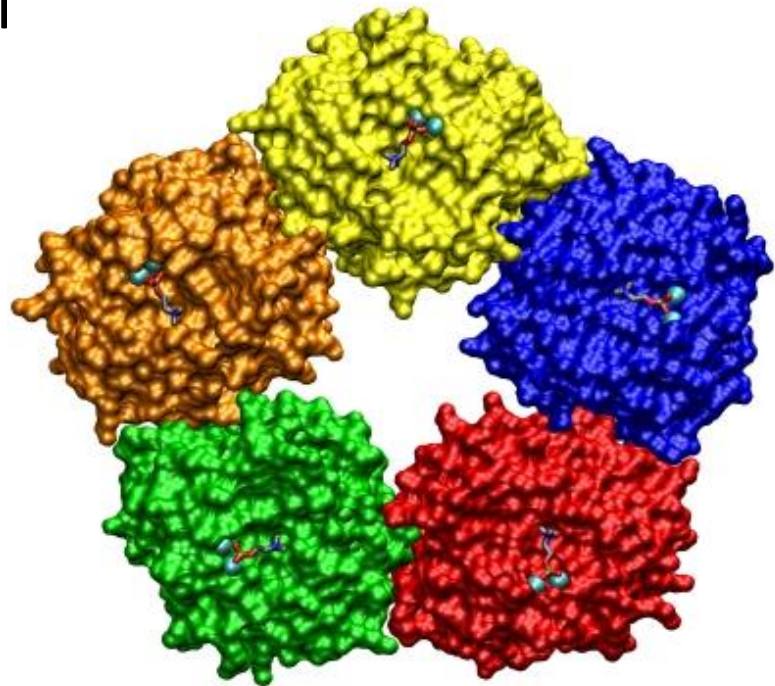
**(1995) A prospective study of daily measurement of C-reactive protein in serum of adults with neutropenia.**



- “Serial measurements of serum CRP levels may be helpful in accelerating the detection of an otherwise unsuspected infection.”

# Repeat Requesting: CRP

- 35 % labs have rules to prevent over-frequency of repeat requesting
- 16 % labs allowed daily repeats.
- 13 % labs prevented repeats within 2 days-  
? Paediatric exceptions ?



# Repeat Testing: Vitamin D

## (2008) Chronic Kidney Disease



**NHS**

*National Institute for  
Health and Clinical Excellence*

- “no evidence about how frequently the vitamin D concentrations should be measured...this would be determined by the clinical circumstances.”

# Repeat Testing: Vitamin D

(2010) BMJ Best Practice Guidelines: Vitamin D deficiency

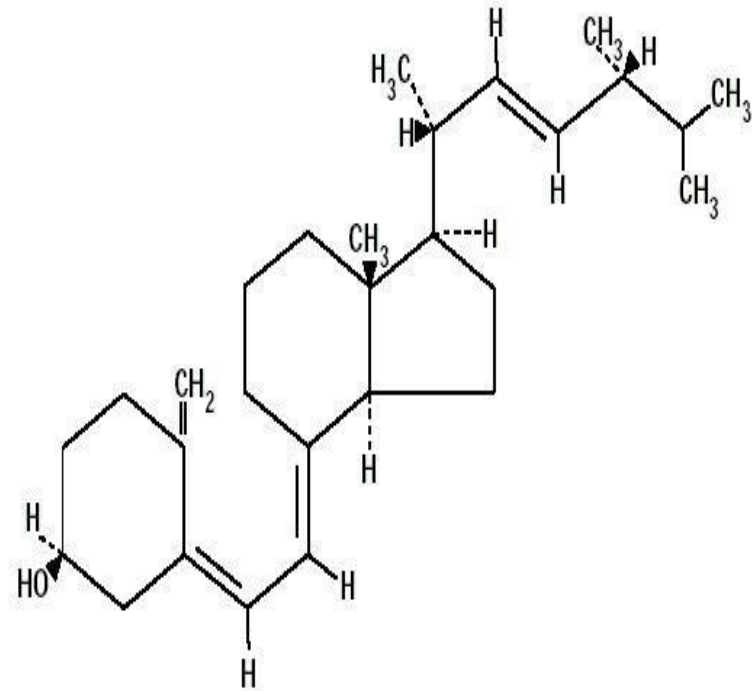
**BestPractice**

Your instant second opinion

- A repeat level of serum 25-hydroxyvitamin D is recommended 2 to 3 months after initiating therapy, to ensure that vitamin D deficiency has been treated.

# Repeat Testing: Vitamin D

- 35 % labs have rules to prevent over-frequency of repeat requesting
- All rules to prevent over-frequency of requesting were in line with guidelines.



# Repeat Testing: B12 and Folate

CKS Guidelines: Anaemia- Vitamin B12 and Folate deficiency:

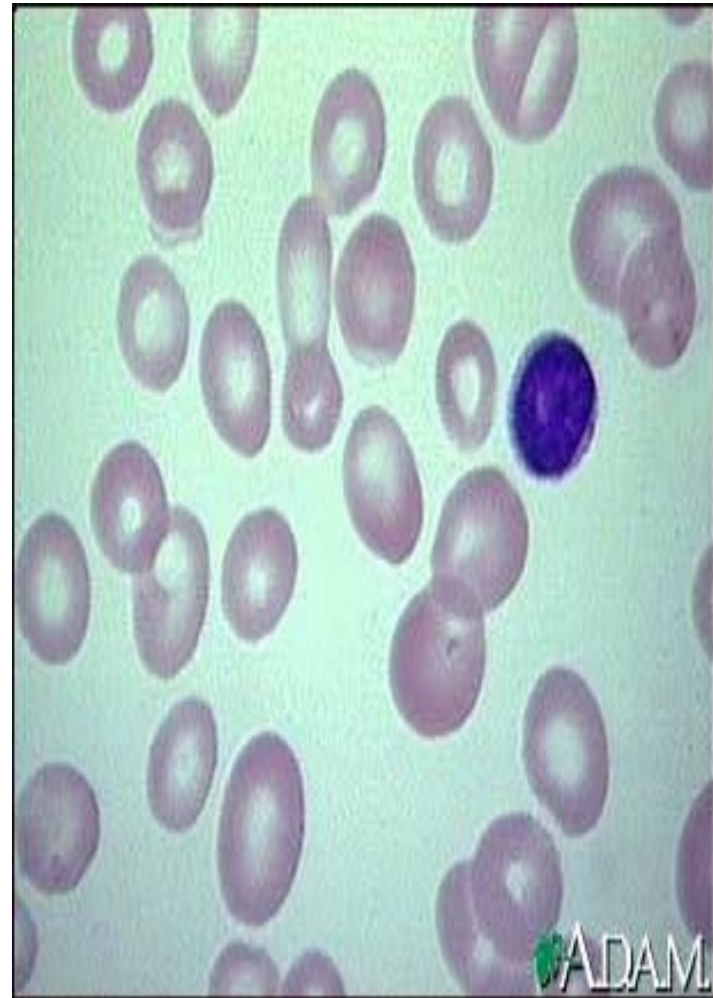


safe practical clinical answers - fast

- “Ongoing monitoring of people being treated with vitamin B12 or folic acid is generally considered unnecessary

# Repeat Testing: B12 and Folate

- 35 % labs have rules to prevent over-frequency of repeat requesting
- None of those with such rules prevent more than one request for B12/folate per patient.



# Repeat Testing: Serum and Urine Electrophoresis

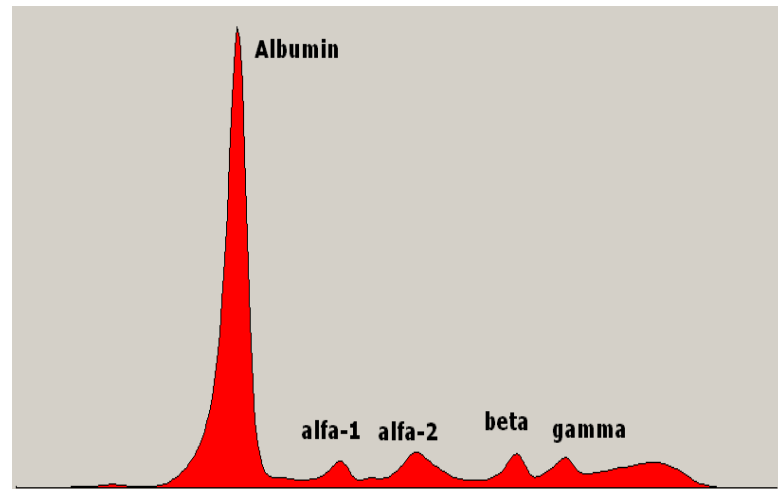
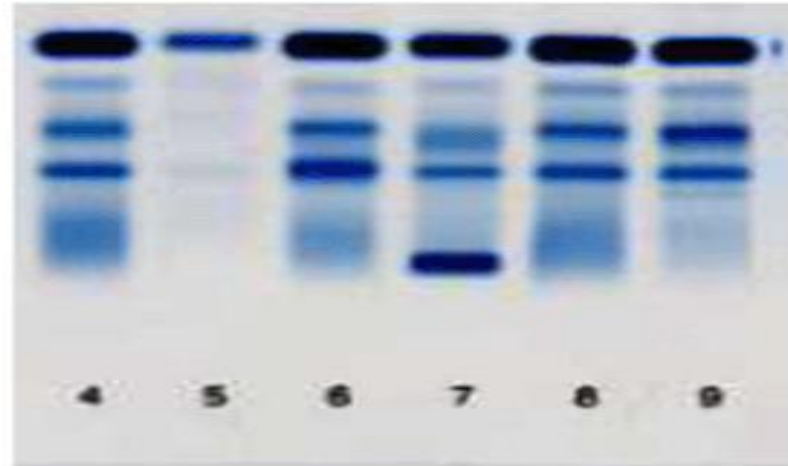
**(2010) Guidelines on the Diagnosis and Management of Multiple Myeloma**



- **Monitoring of patients with myeloma should include regular (typically 3 monthly) measurement of serum and urinary M-protein**

# Repeat Testing: Serum and Urine Electrophoresis

- 10 % labs have rules in place to prevent over-frequency of requesting
- Frequency < 3 months sometimes indicated pre and post stem cell Tx.
- 3 % labs rules prevent testing at least once every 3 months



# Reflex Testing

- No specific guidelines to audit against.
- Compare labs and identify common practice

# Reflex testing

- Majority (97 %) labs do not automatically reflex magnesium to a low calcium, glucose to a low sodium or ketones to a high glucose.
- Majority (94 %) labs do not automatically reflex magnesium to a low potassium.
- 58 % labs offer T4 with TSH as a first-line test, others reflex T4 in response to abnormal TSH.
- 29 % reflex SPE in response to a high TP/globulin.

# Reflex Testing

Of those who automatically reflex test, mean cut-offs are:

- $< 2.0$  mmol/ L calcium -- reflex magnesium
- $< 2.0$  mmol/ L potassium -- reflex magnesium
- $< 123$  mmol/ L sodium -- reflex glucose
- $< 0.3$  mIU/ L or  $> 4.7$  mIU/ L TSH -- reflex T4
- Globulin  $> 47$  g/ L or TP  $> 83$  g/L – reflex SPE

# Discussion

- Repeat testing rules were mostly in accordance with current guidelines, despite a lack of standardisation
- Reflex protocol varied between labs – each case assessed individually?

Variable demand management of add-ons:

- online add-on systems
- paper requesting
- limiting requesting locations

# Conclusion

- Lack of standardisation between add-on, repeat and reflex protocols across labs
- Need for pathology guidelines about reflex testing
- Audit has highlighted new ways of managing demand of add-on tests

# Acknowledgements

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