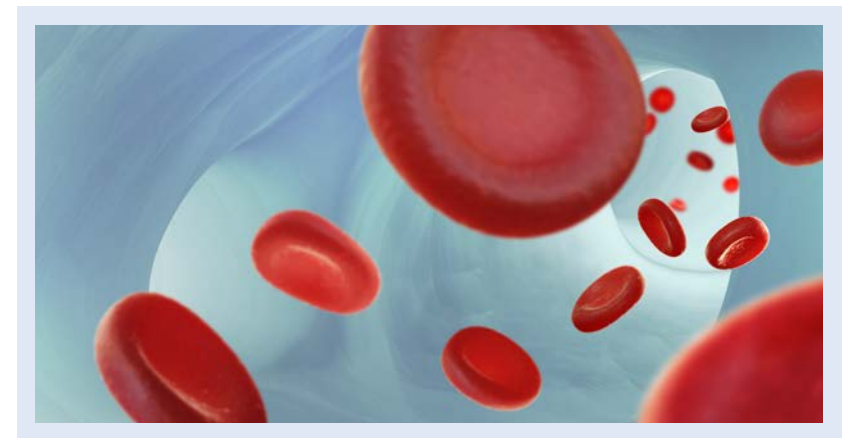


Information on iron deficiency early on

Latent iron deficiency, or iron-deficient erythropoiesis, is a medical condition with evident iron deficiency but without anaemia. It is important to assess this condition early on because it will shortly progress to iron-deficiency anaemia if affected individuals are not treated with iron supplementation. A sensitive and easily accessible blood test marker rapidly detecting latent iron deficiency would therefore be beneficial. Scientific evidence has shown that the reticulocyte haemoglobin equivalent (RET-He) is a parameter for aid in diagnosis and monitoring of iron supply in erythropoiesis.



A pregnant woman expecting twins presented to her physician for a scheduled evaluation. The routine full blood count showed HGB, MCH and MCV values all within normal limits. In addition, the physician had ordered reticulocyte panel results. When evaluating them, RET-He was extremely low at 20.6 pg or 1.28 fmol suggesting evidence of iron-deficient erythropoiesis. A low ferritin of 6.8 ng/mL subsequently confirmed that the patient had absolute iron deficiency. Interestingly, the blood smear of this patient showed an overall normal morphology with only very few microcytic and hypochromic cells but no clear indication of iron deficiency.

In this clinical case, the basic blood count and morphologic analysis alone would not have been helpful in detecting the iron deficiency. Without the initial alert from the RET-He parameter, this woman might not have been proactively treated for iron deficiency. The lack of iron would have impacted not only her well-being but could have led to potentially serious consequences for the twins' health.

What is the reticulocyte haemoglobin equivalent, or RET-He?

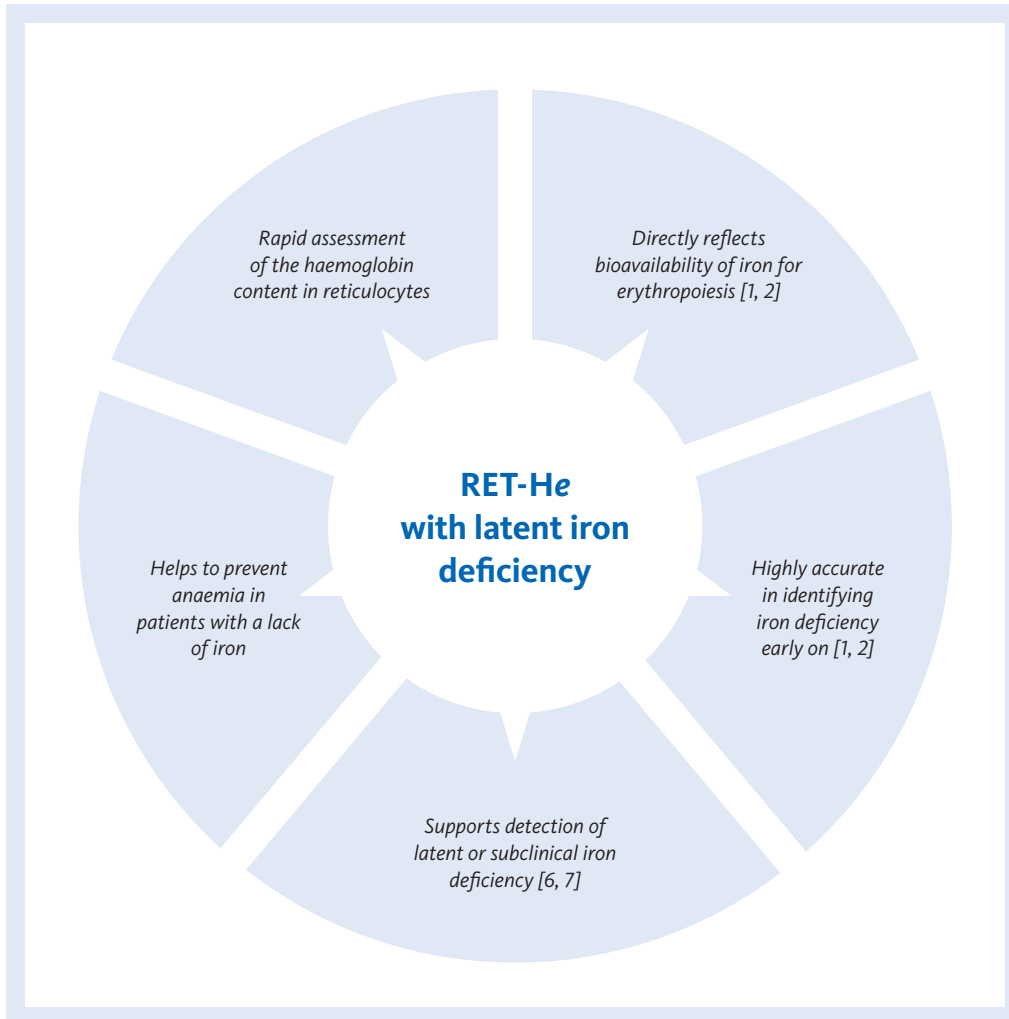
- RET-He is a haematology parameter which reflects the haemoglobin content of reticulocytes – immature red blood cells
- RET-He provides an early, assessment of the available iron that was utilised in the red blood cell production over the previous 2–4 days [1, 2]
- RET-He reference range: 29.3–35.4 pg or 1.82–2.20 fmol [3]
- RET-He has been reported to have high accuracy, sensitivity and specificity for identifying iron deficiency [4, 5]
- The test methodology is based on fluorescence flow cytometry
- RET-He is readily available from a routine laboratory analysis of an EDTA blood sample

RETICULOCYTE
HAEMOGLOBIN
CONTENT
CLINICAL USE

Know more.

Decide with confidence.

Act faster.



Benefits of RET-He with latent iron deficiency

- Assesses the content of haemoglobin in reticulocytes
- Reflects the bioavailability of iron for erythropoiesis [1, 2]
- Support detection of subclinical iron deficiency – the lack of iron before the onset of anaemia [6, 7]

Benefit from more background information in our freely accessible white papers:

www.sysmex-europe.com/whitepapers

Accessing our literature lists will give you an overview of more peer reviewed articles on this topic:

www.sysmex-europe.com/publications

- [1] **Hoemann C et al. (2021):** Reticulocyte and Erythrocyte Hemoglobin Parameters for Iron Deficiency and Anemia Diagnostics in Patient Blood Management. A Narrative Review. *J Clin Med.* 2021 Sep; 10(18): 4250.
- [2] **Hoemann C et al. (2021):** Reticulocyte Haemoglobin as a Routine Parameter in Preoperative Iron Deficiency Assessment. *Endocrinol Metab Vol. 5 No.1:* 154.
- [3] **van Pelt JL et al. (2022):** Reference intervals for Sysmex XN hematological parameters as assessed in the Dutch Lifelines cohort. *Clin Chem Lab Med.* 2022 May 2; 60(6): 907–920.
- [4] **Buttarelli M et al. (2016):** Evaluation of the hypochromic erythrocyte and reticulocyte hemoglobin content provided by the Sysmex XE-5000 analyzer in diagnosis of iron deficiency erythropoiesis. *Clin Chem Lab Med.* 2016 Dec 1; 54(12): 1939–1945.
- [5] **Mehta S et al. (2016):** Reticulocyte Hemoglobin vis-a-vis Serum Ferritin as a Marker of Bone Marrow Iron Store in Iron Deficiency Anemia. *J Assoc Physicians India.* 2016 Nov; 64(11): 38–42.
- [6] **Toki Y et al. (2017):** Reticulocyte hemoglobin equivalent as a potential marker for diagnosis of iron deficiency. *Int J Hematol.* 2017 Jul; 106(1): 116–125.
- [7] **Tiwari AK et al. (2018):** Applying newer parameter Ret-He (reticulocyte haemoglobin equivalent) to assess latent iron deficiency (LID) in blood donors-study at a tertiary care hospital in India. *Vox Sang.* 2018 Oct; 113(7): 639–646.