

TBP Case Study Template

Required components (though creative efforts that deviate from template are welcome):

- ✓ Title
- ✓ Introduction
- ✓ History (include quizzes)
- ✓ Physical exam (include quizzes)
- ✓ Labs (include quizzes)
- ✓ Treatment
- ✓ [Course in hospital]
- ✓ About the condition
- ✓ Learning points
- ✓ References

DATE:

Authored by: Your Name



Title Heading (type over with your own heading)

Notes:

1. Short catchy title
2. The title slide includes an image (shown below). If you would like to replace this photo with a high-resolution image from your own files, please send it with your submission

For example: **25-year-old woman presents with craving for ice**

Title slide ← *Title of case – make it catchy!*



Introduction

Notes:

1. Include a short tweet-length description of the case (example shown in box below) – replace this example with your description
2. We will change the image (“ANEMIA” in case below) to fit your case

25-year-old woman presents with fatigue and shortness of breath on exertion

Introduction



26 year-old woman
presents with **fatigue**
and **shortness of**
breath on exertion

History

Notes:

1. Provide a short history if you are using the traditional case study approach (but feel free to be creative and approach your case from another angle, for example starting with a physical finding or a lab result). Enter history in text box below.
2. Use interactive elements when possible – quizzes and/or flip cards

History:

See next page for an example

History



A 26 year-old woman presents to your office complaining of increasing fatigue over the past 4 months. She also states that she has shortness of breath on exertion, which is new. She is previously well, and is on no medication. She does not drink alcohol and is a never-smoker. She looks pale and tired, and you wonder whether she may have anemia, among other possibilities. You next ask her about other symptoms of anemia (choose from the list on the next slide).


Quiz

Notes:

1. Quizzes are useful tools for focusing the user, identifying (and filling) their gaps in knowledge, building confidence, and providing a knowledge base with which to continue the case
2. Quizzes can be included anywhere in the case, but should typically appear in the history, physical exam and labs
3. TBP quizzes have several features
 - They allow up to 5 questions
 - More than one answer may be right
 - When the user clicks on an answer, they are informed whether it is right or wrong, and they can then continue with the quiz
 - Each answer may be accompanied by an explanation (we encourage this, whether the answer is right or wrong)

History

Quiz



What symptoms are associated with anemia, regardless of its cause?

a

Palpitations

b

Decreased exercise tolerance

c

Headache

d

Diarrhea

Quiz

The image below shows the feature whereby an answer is accompanied by an explanation

What symptoms are associated with anemia, regardless of its cause?

a Palpitations ✓

A reduction in Hb in anemia results in a compensatory increase in cardiac output with increased stroke volume and heart rate, both of which may contribute to palpitations.

What symptoms are associated with anemia, regardless of its cause?

a Palpitations

b Decreased exercise tolerance

c Headache

d Diarrhea

There is an option to include references in your response to answers; these will appear as superscripts within the answer field, with the full reference being listed in NOTES page (more on the NOTES page at the end of these instructions)

Your Quiz (use this template for all your quizzes by simply duplicating or copying/pasting onto another page)

Check correct answers on small left box. Explain why answer is write or wrong in the answer box. If you wish to reference any of the answers, please provide us with PMID number, which you can obtain from PubMed

Question 1

☐

Answer 1

☐

Answer 2

☐

Answer 3

☐

Answer 4

☐

Answer 5

Flip cards

Notes:

1. Flip cards are a kind of e-flashcard that help learners quickly recall information, reinforces and test their knowledge in a case study
2. Learners can click one side of the card to the content on the other side of the card, revealing answers or corresponding concepts such as description or images on the other side
3. Great way to pose questions without showing the answer in multiple choice format

Front of card:

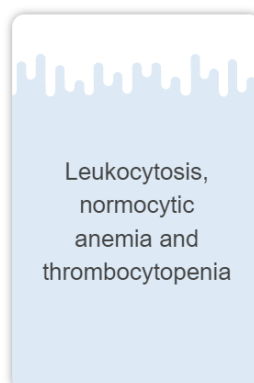
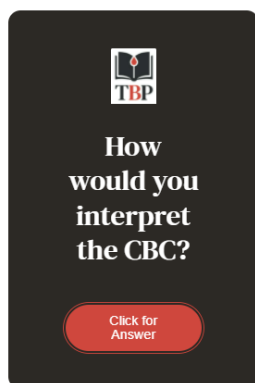
WBC	Hb	Hct	MCV	MCHC	RDW-SD	PLT
19.0	8.1	23.4	82	34.6	48.1	11

What's what: WBC, white blood cell count; Hb, hemoglobin; MCV, mean cell volume; MCHC, mean cellular hemoglobin concentration; RDW-SD, red cell distribution width-standard deviation; platelets, PLT. **Normal values:** WBC $5-10 \times 10^9/L$, RBC $4-6 \times 10^{12}/L$, Hb 12-16 g/dL, Hct 35-47%, MCV 80-100 fL, MCHC 32-36 g/dL, RDW-SD < 45%, platelets (PLT) $150-450 \times 10^9/L$.

Back of card:

WBC	Hb	Hct	MCV	MCHC	RDW-SD	PLT
19.0	8.1	23.4	82	34.6	48.1	11

What's what: WBC, white blood cell count; Hb, hemoglobin; MCV, mean cell volume; MCHC, mean cellular hemoglobin concentration; RDW-SD, red cell distribution width-standard deviation; platelets, PLT. **Normal values:** WBC $5-10 \times 10^9/L$, RBC $4-6 \times 10^{12}/L$, Hb 12-16 g/dL, Hct 35-47%, MCV 80-100 fL, MCHC 32-36 g/dL, RDW-SD < 45%, platelets (PLT) $150-450 \times 10^9/L$.



Physical exam

Notes:

1. Describe the physical exam – you may choose to ask the user to take a quiz before the physical is shown – for example, “what do you expect to find on the physical exam?”
2. Please fill out fields below (example shown on the next page)

Vitals signs

Head and neck

Chest

CVS

Abdomen

CNS

Skin

Physical Exam

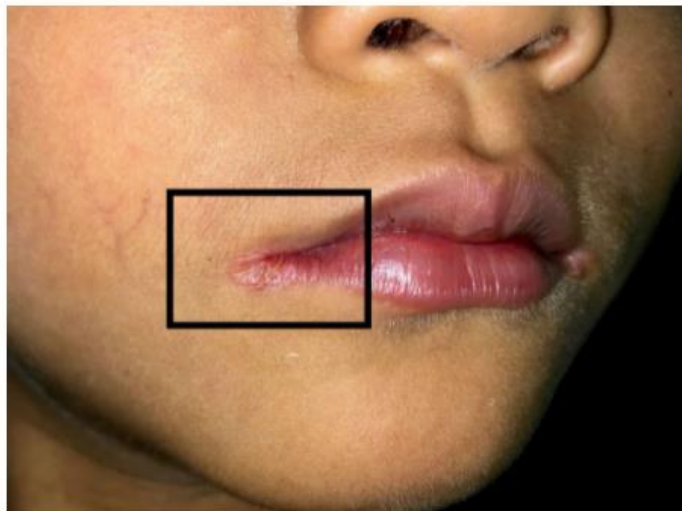


The following describes this patient's physical exam:

Vital signs:	hear rate is 105/min, other vitals stable
Head and neck:	Pale conjunctiva, tongue smooth along the edges
Chest:	Normal to inspection, palpation, percussion, and auscultation
CVS:	S1, S2, systolic ejection murmur
Abdomen:	Non-tender, no hepatosplenomegaly

*We encourage **images** related to the physical exam. If you find any on [Shutterstock](#), let us know and we can purchase.*

Physical Exam



Patient with iron deficiency anemia and angular cheilitis. From Zay Nyi Nyi/ Shutterstock.com



.Patient with iron deficiency anemia and ridged nails. From Toa55/Shutterstock.com

Labs

Notes:

1. Before showing labs, we encourage one or more quizzes to get the user thinking about what they may find. For example:

Labs

Quiz

What do expect to find on the CBC?

a

Low Hb

b

High mean corpuscular hemoglobin concentration (MCHC)

c

Elevated RDW

d

Thrombocytosis

CBC (will often be front and center)

Notes:

1. We are using a standardized table format to present the CBC (see example below)
2. Unless specified and justified, we will not include the MCH
3. We prefer using the *RDW-SD*, but if that is not available, we will default to the RDW-CV
4. We have a similar table for the WBC differential. Please provide *absolute counts* whenever possible

You order a complete blood count. Here are the results:

WBC	Hb	MCV	MCHC	RDW-SD	PLT
6.6	6.2	67	28.4	52	398

What's what: WBC, white blood cell count; Hb, hemoglobin; MCV, mean cell volume; MCHC, mean cellular hemoglobin concentration; RDW-SD, red cell distribution width-standard deviation; platelets, PLT

Normal ranges: WBC $4-11 \times 10^9/L$, Hb 13.5-17.5 g/dL (men), 12-15.5 g/dL (women), MCV 80-100 fL, MCHC 32-36 g/dL, RDW-SD < 45, Platelets $150-450 \times 10^9$

CBC (cont'd)

Please fill in table:

WBC	Hb	Hct	MCV	MCHC	RDW	PLT

Absolute neutrophil count _____

Absolute lymphocyte count _____

Absolute monocyte count _____

Absolute eosinophil count _____

Absolute basophil count _____

Note: in some cases, you will want to present a time series of CBCs. In that case, please do not provide dates that the lab tests were performed (to protect patient identity). Instead use relative DAYS, MONTHS or YEARS. For example, - 56 days, or – 2 years.

Other labs

Lab parameter	Result

Note: Again you may wish to present lab data over time. Please date the results using relative DAYS, MONTHS or YEARS. For example, - 56 days, or – 2 years.

Treatment


Notes:

1. Case studies are designed to encourage critical thinking. They are not meant to serve as an evidence-based a point-of-care resource. Moreover, evidence changes quickly, and we are not positioned (yet) to systematically update recommendations based on clinical practice guidelines
2. As a result, we will approach treatment in more general terms, emphasizing first principles and general concepts (below is an example that relies entirely on a quiz in which the explanations are included in the answer fields)

IDA Treatment

Quiz

Which of the following is an appropriate option for treating the patient (we will address treatment of iron deficiency anemia in more detail in another case study)?



- a Folate supplements
- b Blood transfusion
- c Oral iron supplements
- d IV iron

About the condition

Notes:

1. In this section, provide a short description of the condition you are discussing, breaking it into the subsections below (though you may wish to add or subtract from this menu)
2. Stick with a 30,000-foot view. Generally, we will dig deeper into topics in our eLearning courses
3. If you choose to use references, stick with reviews if possible

Fill in the sections below (example shown on next page)

Description/Definition	
Pathophysiology	
Diagnosis	
Treatment	

About Iron Deficiency Anemia



Description/definition: Iron deficiency anemia may be defined as anemia caused by absent iron stores.

Pathophysiology: Iron deficiency anemia occurs when iron output (almost always in the form of blood loss) outpaces iron intake (which can be affected in malabsorption states). It may also occur in cases of increased iron demand, for example in multiparous women.

Diagnosis: The history, physical exam and CBC give important clues to the diagnosis of iron deficiency anemia. The serum iron may be low and the TIBC elevated, leading to a low transferrin saturation. However, the diagnosis is confirmed by a low serum ferritin level. Diagnostic difficulties may arise when the ferritin is increased on account of inflammation, ferritin leak (for example, in acute liver failure) and congenital hyperferritinemia (in which case ferritin gene expression is marching to its own tune, oblivious to iron stores in the body).

Treatment: Iron supplementation, either the oral route or the intravenous route. When giving oral iron, there is an increasing trend to administer just one pill a day (for example, ferrous gluconate 325 mg) or every other day for 3-6 months. An advantage of IV iron is that it can replenish iron stores in one or two injections, it bypasses issues with iron malabsorption, and it negates the need for months of oral iron. These advantages must be weighed against risk of developing a reaction to IV iron. The use of oral vs. IV iron requires shared decision making.

Key takeaways

Notes:

1. End with key take home messages
2. Enter your takeaways here:

- Takeaway 1 _____
- Takeaway 2 _____
- Takeaway 3 _____

Key Takeaways



- ✓ In patients with suspected or known anemia, *ask about symptoms that are generic to anemia.*
- ✓ In patients with suspected or established anemia of unknown cause, *ask about history or symptoms related to different etiologies.*
- ✓ In patients with suspected iron deficiency anemia, *directly inquire about pica, restless legs and hair loss.*
- ✓ In patients with suspected iron deficiency anemia, *ask about history or symptoms related to causes of iron deficiency.*
- ✓ Common causes include *bleeding* and *malabsorption* (Celiac disease, bariatric surgery).
- ✓ Iron deficiency anemia may be associated with *microcytosis* and *hypochromia* as well as elevated RWD (anisocytosis).
- ✓ Treatment of iron deficiency anemia involves replenishing iron stores with *oral or IV iron.*
- ✓ *Red cell transfusion* may be called for in cases of severe, symptomatic anemia.

References

Notes:

1. Add 1-3 reviews
2. Add most recent clinical practice guidelines

References

Reference	Comment
<i>Review articles</i>	
<u>Br. J Haematol 2014;164:759</u>	An excellent "How I treat" topic by Marie Scully
<u>New Eng J Med 2014;371:654</u>	A review of thrombotic microangiopathies
<i>Clinical practice guidelines</i>	
<u>2012 British Committee for Standards in Haematology</u>	Guideline on the diagnosis and management of thrombotic thrombocytopenic purpura and other thrombotic microangiopathies
<u>2018 ISTH Guidelines</u>	ISTH guidelines for treatment of thrombotic thrombocytopenic purpura
<i>Online evidence-based resources</i>	
<u>DynaMed</u>	A rigorous evidence-based point-of-care tool, can access overview and recommendations section without subscription
<u>UpToDate</u>	Relies heavily on expert opinion. Not accessible without subscription

You have an option to include a NOTES page with a slide. This provides an opportunity to expand on an answer or other aspect of the case without cluttering the slide itself. Below is an example in which we listed all the different types of pica in NOTES. The user simply needs to click on the NOTES button to view. You can include text, references, tables, or images in NOTES.

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