Webquest 1: Diagnosing and Treating Hormonal Diseases and Conditions

Erynne Ewenson, Institute for Education, La Trobe University. Erynne is a Biology Method student at the university.

Introduction | Task | Process | Evaluation | Conclusion | Teachers Notes

Introduction
In this activity you will work in groups of 3 or 4. You are endocrinologists working at St. Vincent’s Hospital in Melbourne. You specialize in diagnosing and treating people with diseases related to hormonal imbalances. Below is a list of new patients that have not yet been diagnosed.

Patient 1 – Margaret  Patient 2 - Peter  
Patient 3 – Meg  Patient 4 - Joshua  
Patient 5 – Caitlyn  Patient 6 - Nicole  
Patient 7 – Michelle  Patient 8 - Jillian

The diseases or conditions these patients may have are:
diabetes type 1  graves disease  
cushings disease  diabetes type 2  
menopause  addisons disease  
growth hormone deficiency  hyperparathyroidism

Task
To successfully complete this unit you are required to select one patient and correctly diagnose their disease/condition based on the symptoms they describe. You are to explain to the patient why a deficiency or increase in the hormone is having an adverse effect on them – what is happening in their bodies to make them feel sick or tired etc.

After you have diagnosed the patient’s particular disease you are required to prescribe appropriate treatments for them, including medication, changes to lifestyle etc. Use the links to websites below to help you diagnose the disease and to research the best possible treatments available

Each group will be required to present their findings to their fellow scientists (the rest of the class). The choice of presentation is up to each group. For example you could present your results in a poster, give a PowerPoint presentation, make up a brochure etc. (Teacher notes – criteria break down and methods of presentation). You will be given 2 periods to work on this in class and one period will be allocated to present your findings.
1) **Margaret** is 48 years old and is complaining of various non-specific problems. She suffers with hot flushes particularly at night time, which result in severe sweating. After the hot flush the sweat leaves her feeling very cold. She has trouble getting to sleep and once asleep she has trouble staying asleep. She is also complaining of headaches and mild irritability. Her headaches and mood swings are irregular and don’t seem to follow any particular triggers. Margaret is also suffering with dry skin and hair.

2) **Peter** 64 year old male complains of feeling tired and depressed. He also describes non-specific pain all over his body. He has constant indigestion and heartburn, and sometimes has severe nausea and vomiting, pain in his stomach and constipation. Peter also has high blood pressure.

3) **Meg** 12 year old female doesn’t appear to be developing properly according to her age. She is currently the size of an 8 year old but she has normal body proportions, that is, although Meg is small her body looks normal. Meg has also gained a lot of weight recently and is now overweight for her size.

4) **Joshua** 55 year old male who is overweight, is physically inactive and has a poor diet. He complains of feeling fatigued and nauseas. He frequently needs to urinate and also has excessive thirst. He gets a lot of infections from which his recovery time is very slow. He also has blurred vision and high blood pressure. Joshua’s family history indicates a high incidence of this condition.

5) **Caitlyn** 7 year old female who suffers from intense thirst and hunger and is always very tired. She frequently needs to urinate, especially at night time. She has excessively dry skin and also suffers with blurred vision. Recently she has lost a lot of weight but has not changed her diet. Caitlyn looks thin and malnourished but her diet is good. Caitlyn’s medical history shows she had a particularly severe case of measles when she was 4 years old.

6) **Nicole** 31 year old who suffers with intolerance to heat, and excessive sweating. She has a rapid heart rate and forceful heat beat. Nicole gets frequent headaches and very sore eyes, suffers from insomnia and also has muscle weakness and muscle tremors. She has an increased appetite and high anxiety levels/irritability.

7) **Michelle** 65 year old female suffering constant and sudden weight loss. Just recently started losing lots of weight. Her muscles are also becoming weaker, she has trouble walking for a long time, and she cannot pick up her shopping bags etc. She has constant aches in her joints and is often nauseous and has frequent episodes of vomiting. She is constantly fatigued and her blood pressure is very low. Michelle has noticed her skin changing to a much darker colour in various places. Michelle has previously had rheumatic fever which can trigger an autoimmune reaction in the body.

8) **Jillian** is 38 years old. She has been putting on weight in the upper body for the past year particularly around the face and neck, but her arms and legs are becoming thinner. Her skin does not heal when she is hurt and she tends to bruise a lot more easily than she used to. Jillian is also developing purplish stretch marks on her abdomen and has developed a slight covering of body hair. Jillian is complaining of always feeling tired and depressed. She has frequent back and headaches and high blood pressure.
**Process**

In addition to using your class notes on hormones and your text book, also use information from the following Web pages for your project. This will demonstrate you are able to use information on the internet to complete this task.

http://www.endocrineweb.com

http://www.nlm.nih.gov/medlineplus

http://www.mic.ki.se/diseases/c19.html

http://patients.uptodate.com

http://www.mayoclinic.com/index.html

http://endo-society.org

**Evaluation**

Your project will be marked using the following assessment criteria:

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VH = Very high

H = High

M = Medium

L = Low

VL = Very low

NS = Not shown
**Conclusion**
From completing this Web Quest task you will have gained knowledge about important hormonal related conditions that can affect people. You will also have developed research skills by finding and sorting out information from the World Wide Web, which you will be able to use in your everyday life, both at school and home, and also perhaps in your future employment. You will also have developed a poster, brochure etc. containing valuable information for people with hormonal conditions or diseases and their friends and families.

**Teachers Notes**
This Web Quest is best suited to students in Year 9 and directly ties into the unit of ‘Regulation, Coordination and Control in Plants and Animals’ (CSF II Learning Outcome 6.3).

- In this unit students should extend their ideas on systems as functioning units of plants and animals to an understanding of the need for regulation, coordination and control for the organism to function as a whole.

By conducting this Web Quest project, students will gain an understanding of the importance of hormones in our everyday lives.

Students will spend 2 lessons working in groups of 3 or 4 to find and utilize information from the World Wide Web on particular hormonal diseases and conditions affecting humans. Most of the information they use should come from the internet using the links provided, but information from text books is also allowed. Students will be required to present their results to the class in their respective groups. The presentation is simply for the students to gain public speaking experience and for the class to gain skills in interpreting information and asking questions.

Students **MUST** put any information they find from the internet in their own words. It is not acceptable to simply cut and paste slabs of information into their final presentations. Students can show their depth of understanding by putting information in their own words. Where possible, the use of pictures/diagrams should be encouraged and should also be included in their final presentation.

Students can prepare their information for this project in a number of ways, such as a Power Point presentation, a poster, an information brochure, a doctor/patient role play etc. The choice of presentation method is up to the students. When presenting their information to the class, groups should be allowed a 7 or 8 minute allotment to present their results, followed by a 2-3 minute question time.

To make sure that each group does a different patient, draw numbers out of a hat and allocate to groups. Alternatively get students to draw numbers out once they have formed their groups.

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