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The graph below shows data regarding deaths of women who gave birth in a hospital during the 1800s. An important doctor working in the hospital was Dr Semmelweis.

Women gave birth in one of two wards, **Ward A** and **Ward B**.

Before 1840 both doctors and midwives worked in both **Ward A** and **Ward B**.

After 1840 only doctors worked in **Ward A** and only midwives worked in **Ward B**.

Doctors often worked in other wards with people who had diseases.

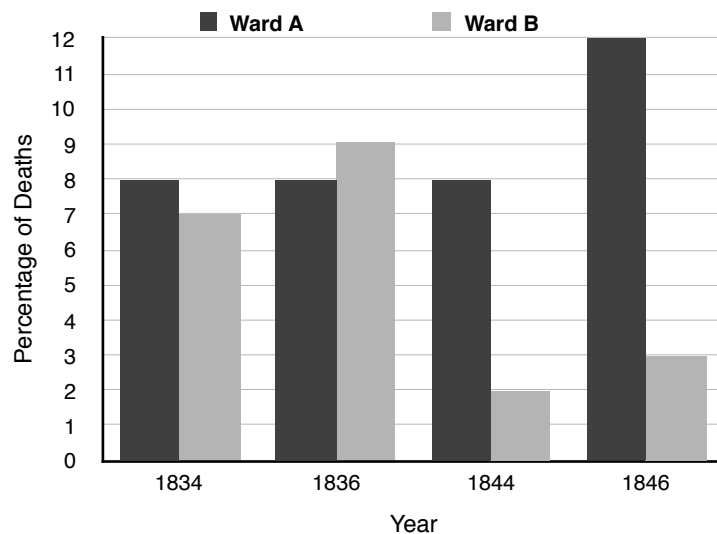


Chart 1

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Look at the data for **Ward A** and **Ward B** after 1840.

Describe the effect on death rate of having only midwives and not doctors working in **Ward B**. Refer to the data in Chart 1 in your answer. **[2 marks]**

lower death rate with only midwives [1]; any appropriate numerical description

e.g. 6% less deaths than in ward A IN 1844 OR 9% less deaths in 1846 [1]

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Suggest a reason for the differences you described in question 01.1

doctors (are more likely to) transfer [1]; microbes/fungi/bacteria/virus'/pathogens (in other words, not using doctors lowers the risk of getting infections) [1]

**[2 marks]**

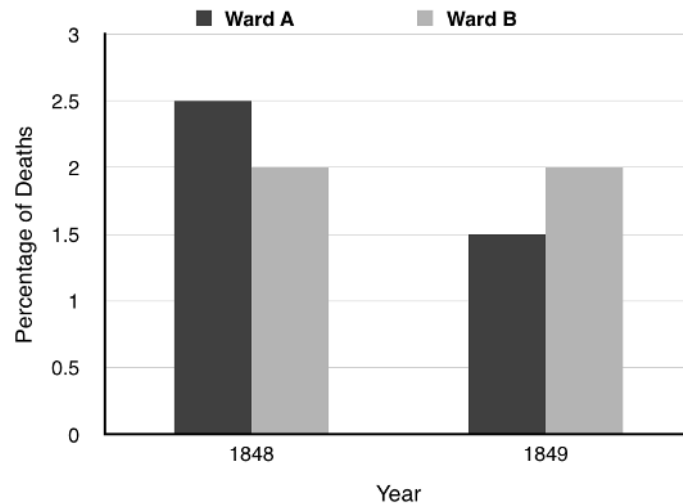
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After 1846, in a controlled experiment, Dr Semmelweis made doctors wash their hands in chloride of lime solution before delivering the babies.

The chart shows the death rates in the two wards from 1848.

**Chart 2**



What was the impact of making doctors wash their hands in chloride lime solution? Use evidence from **Chart 1** and **Chart 2** to help you.

decrease of deaths in ward A [1]; refer to an approximate proportional drop of approximately 4 x less in 1848 or approximately 6 x less in 1849 [1]; reference to the number or percentage of deaths being closer to ward B [1]

**[3 marks]**

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Suggest why washing hands in chloride of lime had the impact you described in 01.3

Chloride of lime (do not just say 'it') kills germs/pathogens/bacteria/virus'/fungi

**[1 mark]**

**DON'T FORGET :** With any 'DESCRIBE' question associated with a graph - there is a temptation to EXPLAIN the reasons behind the data but that is not what is being assessed, instead you need to say what you see in the graph, describe patterns and quote some data.

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Define what is meant by a pathogen

a microorganism that can make you ill/cause disease

[1 mark]

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Read the information about TB then answer the questions that follow:

“Tuberculosis (TB) is a dangerous disease that is caused by a bacterium called Mycobacterium Tuberculosis. When a person with TB coughs and sneezes, the bacteria get into the air and then other people may breathe them in.”

State the part of the body that TB bacteria invade and describe how this part of the body defends itself from infection.

airways/bronchi/lungs/bronchioles [1]; mucus there traps pathogens/TB/

bacteria [1] cilia move/waft mucus away [1]

[3 marks]

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Describe how TB bacteria cause disease after they have entered the body?

release toxins/poisons [1] that damage cells or tissues [1]

[2 marks]

Name one other type or group of microorganism, other than bacteria that can cause disease

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fungi , protists, or viruses

[1 mark]