ELGA VEOLIA

interactive quiz and toolkit

Water in pharma and healthcare

How much risk can you take?

Let's go

To experience full interactivity you may need to update Adobe Acrobat. **Download here.**

Lab water contamination is **avoidable**

This interactive document will take you through four key areas where the impact of contaminated water can be catastrophic — whether measuring therapeutic levels of drugs in patient plasma samples or deciding to pass or fail a batch of API for drug formulation.

To find out more about the applications in these different areas, you can also download our white papers on HPLC in pharma analysis and Reducing risk in HPLC/LC-MS therapeutic drug treatment and monitoring.

TEAM ELGA VEOLIA

Menu

Pick an area, test your knowledge and learn...

Therapeutic drug monitoring

Active pharmaceutical ingredient measurement

Forensic toxicology

Water in a hospital environment

Next

Q Which of these is the easiest method for therapeutic drug monitoring?

Click a letter

A Immunoassay

B LC-MS/MS

C HPLC

Next

Q Why is it so important to measure therapeutic drugs accurately?

Efficacy

Variables

Toxicity

Compliance

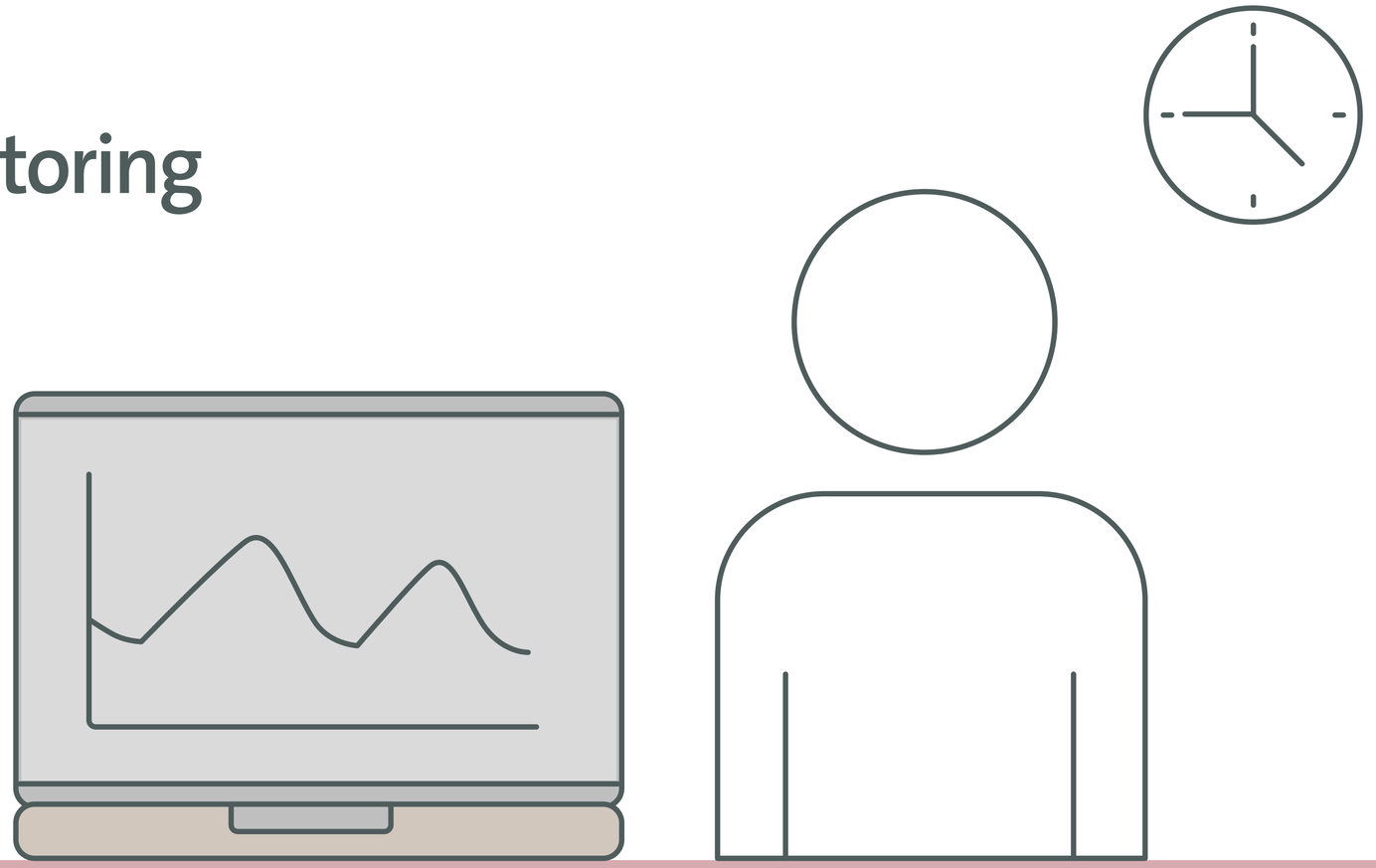
Next

EXPERIMENT 1

Therapeutic drug monitoring

Therapeutic drug monitoring should be performed when the patient has achieved steady-state concentration, has changed drug therapy, or has had a change in response to treatment e.g. toxicity.[2]

Establish therapeutic ranges at timed blood collections after steady-state concentrations have been reached (generally 5-7 half-lives after initiation of or change in dosing).[2]



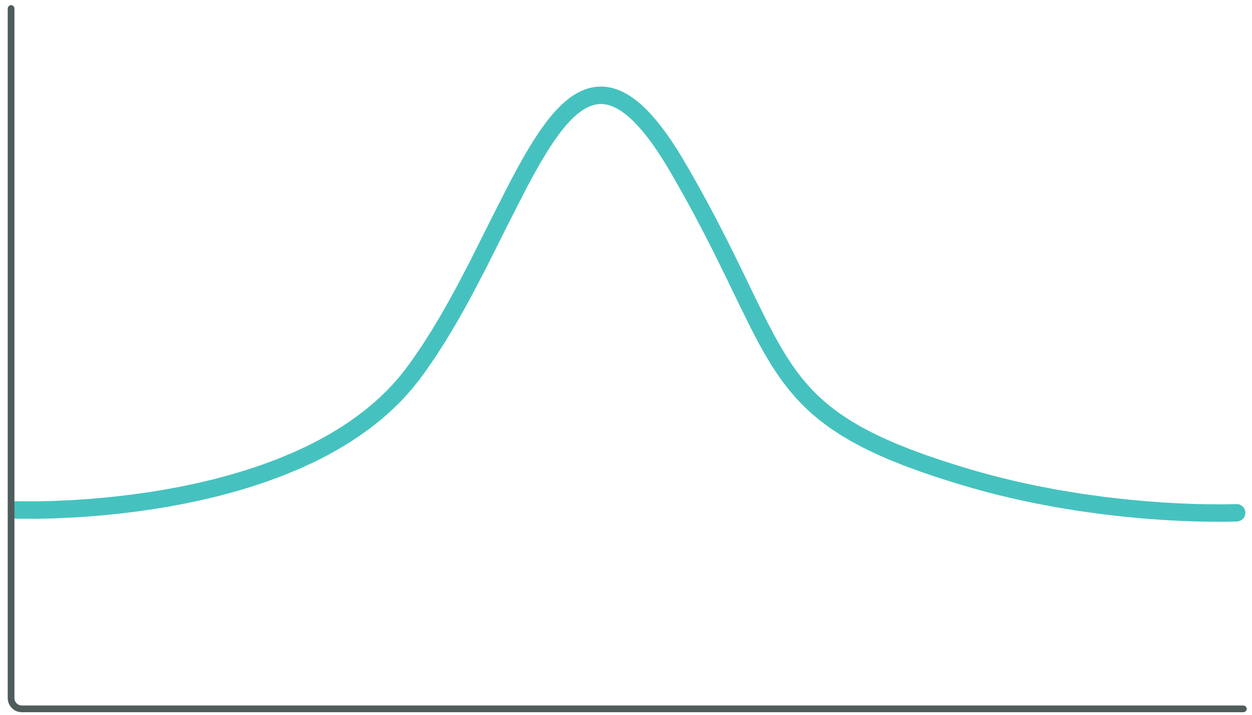
Begin | 2 | 3 | 4 | RESULTS

Therapeutic drug monitoring

Results and impact on background with...

Contaminated water

Ultrapure water



DOWNLOADS

Dive deeper...

LC-MS/MS is fast, flexible, adaptable, and allows the simultaneous quantification of multiple analytes. Discover more about the use of LC-MS for TDM and other applications in our white paper.

Download whitepaper now

Next

Q What type of water is needed during pharmaceutical manufacture if the API is not sterile, but is intended for use in a sterile, parenteral product?[4]

A Potable water

B Water for injection

C Purified water (not sterile)

Q Why is dissolution key in pharmaceutical analysis?

Bioavailability

Generic/branded

Reproducibility

In vivo profile

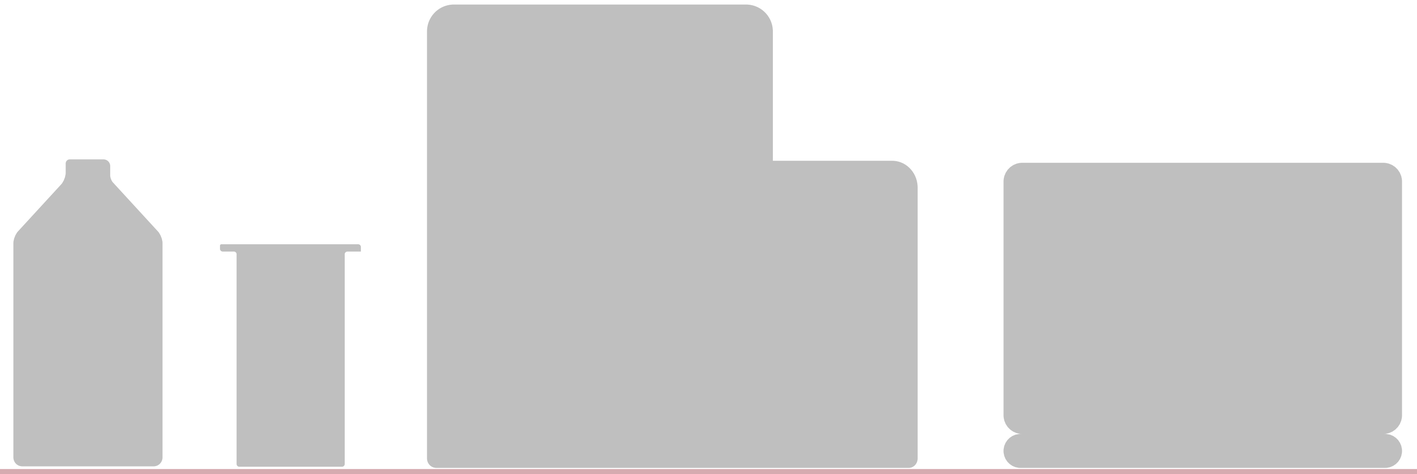
Next

EXPERIMENT 2

Active pharmaceutical ingredient (API) measurement

You need to avoid contamination that might affect the accuracy of your measurements if you are measuring the level of an API in a tablet during QA.

This is particularly important in the branded versus generics debate, where the vector substance that is carrying the active ingredient can have a key role in making the active ingredient available in the body.[6] This can be measured via dissolution testing.[7]



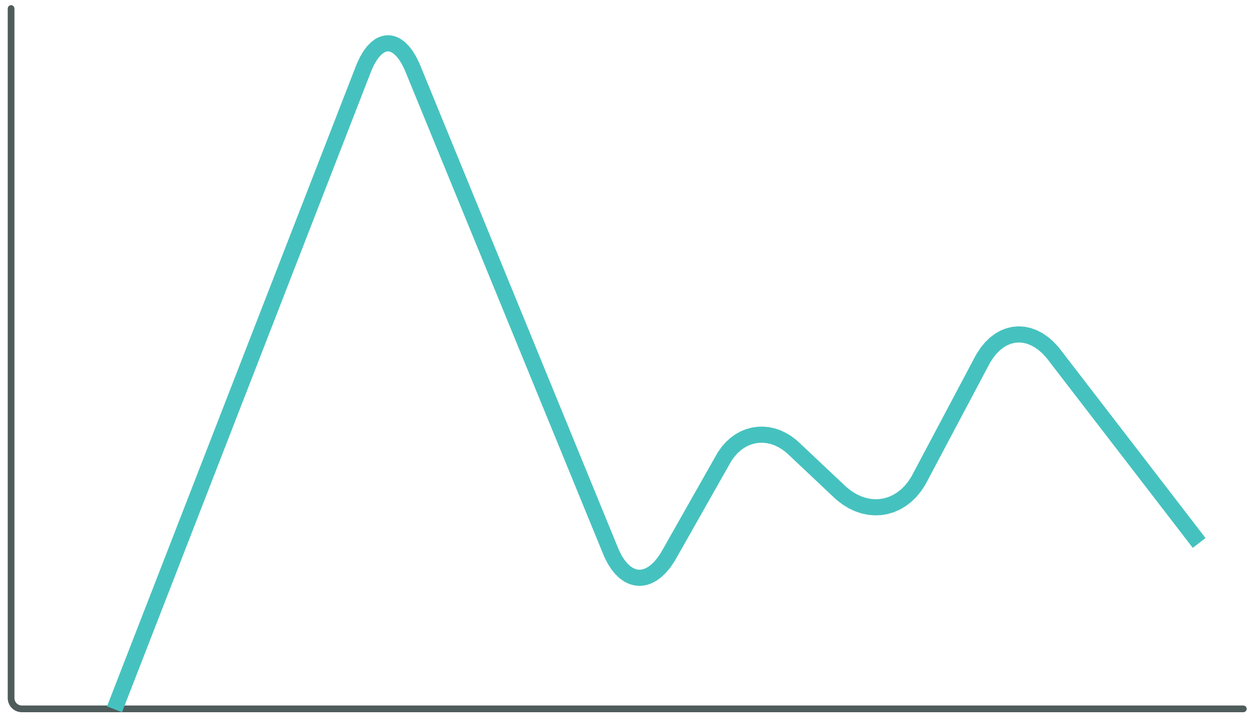
Begin 2 3 4

Active pharmaceutical ingredient (API) measurement

Results and impact on background with...

Contaminated water

Ultrapure water

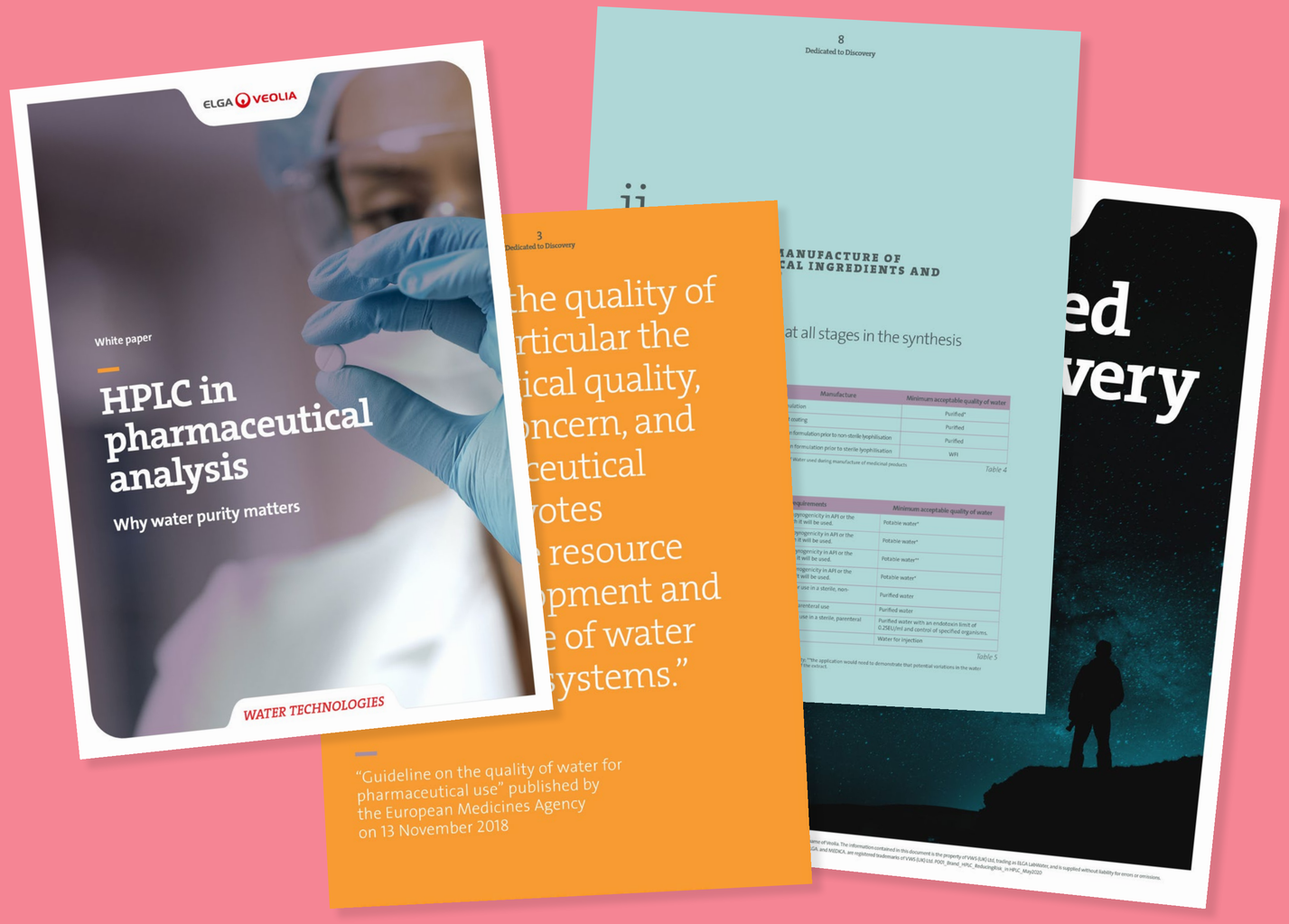


DOWNLOADS

Dive deeper...

Discover in our white paper why ultrapure water – and choice of other types of water – is critical for HPLC applications in pharmaceutical manufacture.

Download whitepaper now



Next

Q What is the most accurate type of sample to detect drug use?[9]

A Blood

B Urine

C Hair

Click to reveal more on the sample types commonly used to detect illicit drug use

Blood

Urine

Hair

Next

EXPERIMENT 3

Forensic toxicology

Establishing a person's exposure to drugs of abuse or pharmaceuticals is important for many situations including forensics, clinical applications or in doping control.

Drug analysis is usually carried out on body fluids, such as urine or blood samples. But in recent years, remarkable advances in sensitive analytical techniques has expanded opportunities for using drugs in less conventional samples, including hair.[12]

Forensic toxicology

Impact on results with

Contaminated water

Ultrapure water

DOWNLOADS

Dive deeper...

Ultrapure water is key to accurate drug analysis of all sample types, whether dealing with doping in sport or drug-related crime. Find out more in our white paper.

Download whitepaper now

Q In which of these application areas does ultrapure water play a key role in the hospital environment?

A Identifying non-communicable disease biomarkers

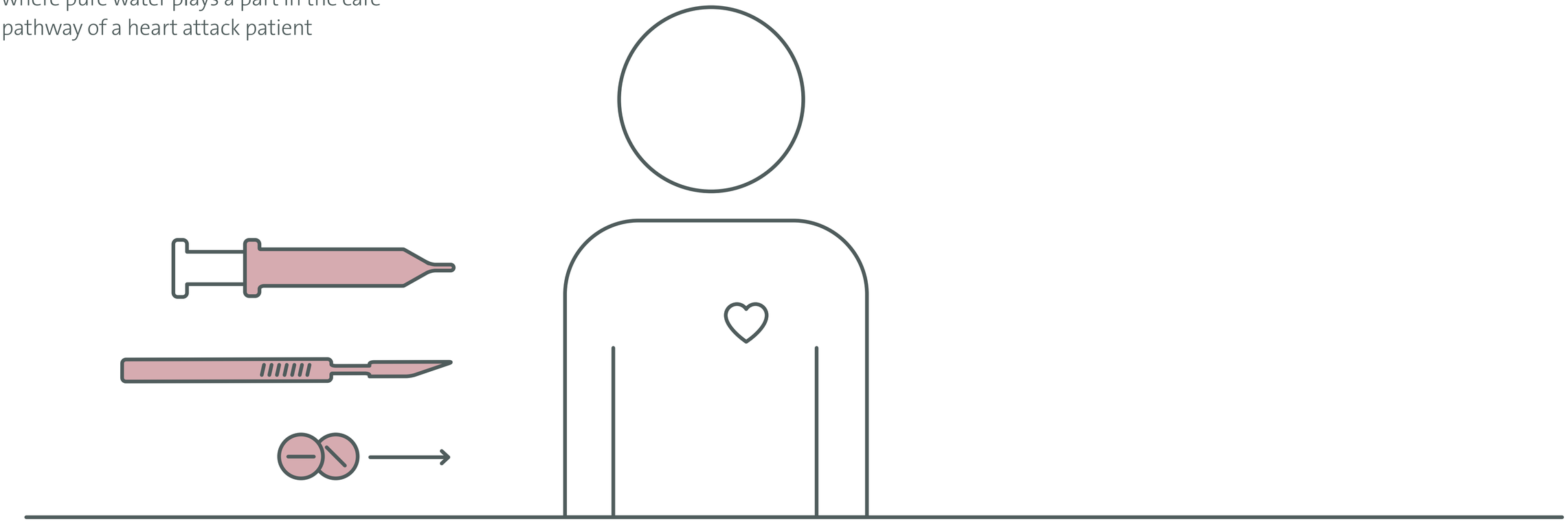
B Identifying bacterial pathogens

C Characterising viral subtypes in epidemiological studies

TEST YOUR KNOWLEDGE: WATER IN THE HOSPITAL ENVIRONMENT

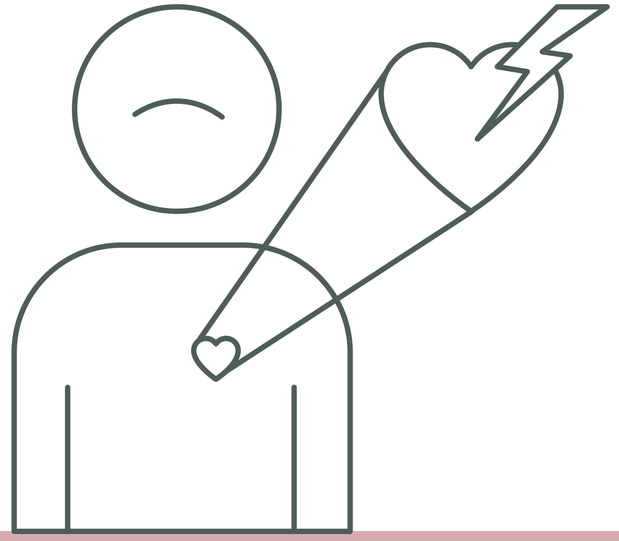
Here we imagine a scenario where a patient has suffered a heart attack, and we consider the role of water in the overall diagnosis and management of their condition.

Click on the coloured icons to find out the key areas where pure water plays a part in the care pathway of a heart attack patient



Next

Heart patient scenario



Assessment

Intervention

Treatment

Let’s consider the role of water in the overall diagnosis and management of a heart patient’s condition in more detail.

DOWNLOADS

Dive deeper...

From analysis of patient samples after a heart attack to the precision medicine prescribed for recovery, ultra-water is key. Read more about the applications in our white papers.

Water in LCMS applications

Download whitepaper now

Water in pharma applications

Download whitepaper now

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