

# Stratified and personalised medicines

## Same symptoms, same disease, same treatment?

It has generally been thought that patients diagnosed with the same disease have the same root cause. They are often offered the same treatments. However, clinical experience tells us that patients do not all respond in the same way.

In reality, patients diagnosed with the same disease can have different causes of their disease. Therefore it is of great interest to try and develop medicines or treatments tailored towards to a specific group of patients or individuals: **stratified or personalised medicine**. Often, a '**companion diagnostic**' is needed to tell the suitability and dose of the medicine for the particular patient.

The European Alliance for Personalised Medicine (EAPM) defines personalised medicine as '**a targeted approach to the prevention, diagnosis and treatment of disease based on an individual's specific profile**'. Often the terms 'personalised medicine' and 'stratified medicine' are confused and used as if they mean the same thing, however they have important differences:

<b>Stratified medicine</b>	<b>Personalised medicine</b>
It is the use of a medicine that is targeted at a patient <b>sub-population</b> (a group or a proportion of patients, e.g. having a particular disease, age group or disease stage), instead of using one medicine to treat all patients with that disease.	It aims to use targeted medicines taking into account other individual information to tailor the treatment and management of the patient to their particular situation. It is used to ensure the best outcome and reduce the risk of side effects.

Personalised and stratified medicines are growing in importance, and their approaches have been widely applied to cancer treatments and rare diseases, where there is plenty of available information on the underlying genetic causes of the disease. It is expected that these approaches will be increasingly used in the development of treatments for other diseases as well. This is an important change in the approach to treating disease because when diagnosed with the same disease (having different underlying causes), patients will respond differently:

- some will respond well
- some will not respond
- some may tolerate the treatment less well because of genetic differences
- some may develop 'resistance' to the medicine (they stop responding) even if they responded well at first.

These differences can have a great effect on the way a disease progresses, and on the treatment choice.

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