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SPECIAL REPORT / Europe needs fewer specialised doctors and more drugs and treatments to target personal ailments with pinpoint accuracy, policymakers at the Gastein Health Forum heard yesterday (3 October).

But the continent needs to get a grip of IT and data in the health sector in order to enable such personalised medicine to flourish, delegates were told.

Over-structured health services in Europe are resulting in over-specialised doctors working in segmented departments, Thomas Plochg, a professor of public health with the University of Amsterdam, said in a session on sustainable health systems.

Plochg said that healthcare modernisation has revolutionised innovation in knowledge and technology, but left the sector's professionals – including specialists such as cardiologists, surgeons or community physicians – almost untouched.

He claimed that specialisation no longer suited an ageing demographic which increasingly suffered from overlapping chronic diseases rather than single maladies that could be treated in isolation.

### **Ageing population suffers many chronic diseases**

"The disease-by-disease approach we have taken thus far to curable diseases is no longer efficient. Multimorbidity is too complex an interplay of genetics and lifestyle, socioeconomics and the environment for us to be able to cure it with this old approach," Plochg said.

"You can only manage complex health problems if you focus not on individual bodily organs but rather the body as an entire system and its interactions," he argued, calling for change to be shaped at EU-level.

The Dutch expert explained: "The research agenda for the provision of health care is a good instrument to create more system-based knowledge and technologies that can legitimate and support the development of multi-morbidity-proof health professions in the 21st century."

But if the doctors of the future must become more generalised, the opposite is true of medicines and treatments, which are becoming so specialist that they will soon be able to target individual problems, delegates heard.

### **Breakthrough in personalised medicine is imminent**

Huge research spending on such "personalised medicines" has delivered modest returns so far, Angela Brand, the Maastricht-based director of the European Centre for Public Health Genomics – told a seminar on European health governance.

"One reason is that we have not yet been able to sufficiently integrate the cellular, molecular and genetic uniqueness of the individual patients in interaction with environmental factors. But truly dramatic advances in this regard are imminent," she said.

So-called "stratified medicines" are already defining groups of patients with genetic similarities who respond positively to certain therapies, Brand told the Austrian forum, adding: "For instance, based on certain genetic traits of a tumor, we can now predict very precisely for many types of cancer whether or not the given patient would benefit from chemotherapy."

Brand said that the next stage will be a shift from "stratified" to "personalised" medicines.

That would mean, for example, taking stem cells out of a tumor and using these to activate the individual patient's immune system against these cells using vaccination.

Although still at the experimental stage, Brand said: "These strategies are used by the Max Planck Institute for Molecular Genetics in Berlin. Their incorporation in actual practice is imminent."

### **Personalised medicine needs accurate models**

The trend towards personalised medicine is being fostered with a number of initiatives by the European Commission, but the forum heard that concerns over data remain a hindrance to innovation in the sector.

Critical to the advancement of such medicines and technology are biobanks, or collections of human blood or tissue samples that can be networked with as much detailed information as possible about the lifestyle and diseases of the individuals from whom the samples were taken.

The pan-European Biobanking and Biomolecular Resources Research Infrastructure helps clear access to samples of human blood, tissue, cells or DNA and to the associated data, and the EU pilot project IT Future of Medicine is working on effective management of the enormous volume of data.

Professor Kurt Zatloukal of the University of Graz, said: "This development work is intended to produce computer models that allow physicians to simulate and understand diseases and therapies in a given individual and then plan their therapeutic recommendations more efficiently."

## **Data issues are dogging sector**

The stark problems facing advancements in the sector as a result of inefficiencies and the lack of standardised rules affecting data were emphasised in the forum's opening plenary by Toomas Hendrik Ilves, the president of Estonia.

Ilves told delegates that European health systems are simply digitising existing bureaucratic paperwork systems rather than adapting new digital management models. The lack of standardised regulation concerning data protection is creating uncertainty and inefficiency, he said.

"Regulation and practice are way behind practise," said Ilves referring to new mobile "apps" used by the health sector, which gather data which cannot be effectively managed. "Data usage and ownership will significantly change the doctor/patient relationships," Ilves said, calling for the introduction of a new basic EU electronic health record for all citizens.

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