

## Position paper on the "Future Programme Hospitals". Investment offensive for robotic assistance systems in surgery

The "Hospitals of the Future Programme" agreed on by the coalition committee with a budget of 3.9 billion euros (3 billion federal level and 0.9 billion state level) offers great opportunities for innovative patient care and provides an important impulse for modern quality medicine in Germany. Investments are to be promoted both for modern emergency capacities and for a better digital infrastructure in hospitals, including better care, telemedicine, robotics and high-tech medicine. As a component of the targeted promotion of top-level medicine in result-oriented patient care, the department "Robotics in Medical Care" of BVMed e.V. requests in the following position paper a part of the funds to be earmarked for robotic assistance systems.

The world's leading suppliers of robotic assistance systems in surgery have joined in the department "Robotics in Medical Care", founded in 2019.

### A. Problem

#### Investment gap in the German hospital sector - especially for future technologies

- > Between 2009 and 2019, an additional investment backlog of 30 billion euros has occurred in addition to the already existing investment gap in the hospital landscape. With 3.0 %, the investment ratio in the German hospital sector has fallen to a new low level in 2019. In comparison, with 20.3%, the economic investment ratio (ratio of gross fixed capital formation and gross domestic product) is six times higher.<sup>1</sup>
- > Due to the considerable financing gap, hospitals have to finance non-system investments from the revenue of patient treatment. It is estimated that between one-third and one-half of the hospitals are confronted with loss-making commercial results.<sup>2</sup>
- > At the same time, doctors and hospital managers see great potential for German hospitals in digitization, but hospitals currently lack the financial resources for it.<sup>3</sup>

#### Germany as a robotics development location with potential - expansion in medical technology and application in practice necessary

- > Germany is the leader in many robot technologies. Robotic innovations are also being developed in Germany in the field of medical care.
- > An essential requirement for the development of future technology and high tech is the establishment of an available robotic infrastructure.
- > The migration and merging of data provided by robotic assistance systems with other health data is important to harness the benefits of these technologies to verify better patient care.

#### "Future programme hospitals" with focus on digitisation and robotics; no "watering can principle"

- > At present, 3.9 billion euros from the economic recovery package are being used to try to make up for the investment backlog that hospitals have built up over the years, with the focus on digitisation. In order for this to work, concrete legal requirements - limited to future technologies - are necessary.
- > It is dangerous that the newly provided investment funds will not be used for the "digital future" of hospitals, but for acute "fire extinguisher" issues and building investments. The link with to the Structural Funds increases the fear of an uncontrolled "watering can principle".

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<sup>1</sup> DKG (2019): Inventory of hospital planning and investment promotion in the federal states.

<sup>2</sup> Roland Berger (2019): The end of growth. Germany's hospitals between cost pressure and increasing competition.

<sup>3</sup> Augurzky et al. (2020): Hospital Rating Report 2020, available on the Internet at: <https://www.rwi-essen.de/presse/mitteilung/400/>. Retrieved on 16.07.2020.

## **B. Our claims**

### **Rapid provision of funds in the "Future Hospital Programme" with focus on digitalisation and medical robotics**

- > The funds of 3.9 billion euros from the economic recovery package were to be earmarked for hospitals to invest in digitisation and robotic assistance systems.
- > The focus shall be on future technologies such as robotics in medical care or digitalisation technologies in patient treatment.
- > A specific budget share of the economic recovery package only for robotic assistance systems is necessary: 300 million euros (at least 1 million per constituency) should be earmarked for robotic assistance systems in patient treatment in order to further strengthen high-performance medicine and digitisation in specialist centres, maximum care providers and university research centres.
- > In this context, it should be taken into consideration that a share of the total funding volume will be allocated to homes and centers which are already investing in digitization technologies so that they can continue to modernize their coverage. In addition, special centres that wish to build and use more digital solutions and robotic assistance systems should be given separate consideration.
- > The orientation of the "Future Hospital Programme" towards the Structural Funds (focus on reducing overcapacity, concentration on inpatient care services and conversion of locations into non-acute inpatient local care facilities) may increase the risk of a lack of focus on future technologies. The two funding budgets must be distinguishable in their earmarking.

### **Clear effect measurement of investments in robotic assistance systems and digitalisation**

- > Part of the total funding volume should be used for a national project to measure effects and outcomes on the basis of cross-sectoral routine SHI data.
- > An independent expert opinion based on routine SHI data can prove the positive supply effects of the investments. The focus here should be on indicators for the quality of outcomes such as revision rates or process quality measured, for example, by the length of stay. In addition, a long-term view with patient-specific follow-up and a consistent patient perspective are particularly important, which, for example, gives special consideration to quality of life and functional outcomes, such as mobility after orthopaedic surgery or continence after urological surgery.
- > In addition, the use of robotic assistance systems could be worth considering in the context of existing registers and those currently being established.

### **Strengthening future technologies for "Smart Hospitals of the Future – Made in Germany"**

- > In order to offer this positive medical trend an economic perspective, a state-funded modernization offensive for robotics in German operating theatres is required.
- > In order to strengthen and sustainably promote Germany as a development location, a permanent, earmarked investment mechanism and a federal-state expert group on robotics, digitisation and artificial intelligence in the health care system must be established.

## **C. Justification**

### **Robotic assistance systems in surgery as an important component of top-level medicine with decisive potential**

- > Already in 2016, the European Economic and Social Committee identified robotics in healthcare as an area with expected performance improvements<sup>4</sup>.
- > Only through a large-scale introduction in real business further improvement potential can be uncovered, existing systems can be further developed and integrated and network effects can be achieved.

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<sup>4</sup> European Union (2016): Official Journal. On the Internet at: <https://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=OJ:C:2016:389:FULL&from=SK>. Retrieved on 17.07.2020.

### **Reduction of the variation in the results of surgical interventions by robotic assistance systems**

- > In many surgical procedures, such as the implantation of total knee endoprotheses<sup>5</sup> or the removal of the uterus in the case of benign neoplasms<sup>6</sup>, risk-adjusted differences in retention time, complication and revision probabilities are reported. Thus, they can lead to an improvement in the quality of care and avoid high costs for follow-up treatment.
- > In some studies, robotic assistance systems also show more stable and higher quality results in relation to manual interventions. This potential for better patient care in the healthcare system must be exploited<sup>7</sup>.

### **Demographic change and shortage of skilled workers as challenges in the health care system**

- > The demographic development will pose enormous challenges for medicine in the upcoming years, primarily in the industrialized countries.
  - a. Two developments come together: While the number of people in need of treatment increases with increasing life expectancy, the number of available medical professionals is rapidly decreasing.
  - b. The use of robotic assistance systems and the resulting reduced physical strain on surgeons can increasingly pave the way to surgery for women and men alike.
- > Nationally and internationally, hospitals are in competition for technology- and performance-oriented junior staff. Here, the possibility of training in robotic assistance systems and the associated access to top-level medicine can be a decisive location advantage.

Berlin, 24th July 2020

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<sup>5</sup> Parratte et al. (2019): Accuracy of a new robotically assisted technique for total knee arthroplasty: A cadaveric study. *The Journal of Arthroplasty* 34, 2799-2803.

<sup>6</sup> Lim PC et al. (2016): Multicenter analysis comparing robotic, open, laparoscopic, and vaginal hysterectomies performed by high-volume surgeons for benign indications. *International Journal of Gynecology & Obstetrics* 133.3: 359-364.

<sup>7</sup> Robinson et al. (2018): A systematic review of robotic-assisted unicompartmental knee arthroplasty. *Bone Joint Journal*.

Cotter et al. (2020): Comparative cost analysis of robotic-assisted and jig-based manual primary total knee arthroplasty. *Journal of Knee Surgery*.

Khan et al. (2018): Next-generation robotic spine surgery: First report on feasibility, safety, and learning curve.

Huntsman et al. (2019): Robotic assisted navigated minimally invasive pedicle screw placement in the first 100 cases at a single institution.