DRG-Based Reimbursement and Payment Modalities for Innovative Remote Patient Monitoring Technologies

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BACKGROUND

- Novel technologies offering remote patient monitoring have the potential to ease institutional stresses and promote efficiency. Rapid evolution of healthcare monitoring technologies will create a need for reimbursement for active interventions (e.g., device optimisation, remote follow-up) to ensure optimum follow-up care.
- However, existing reimbursement models for medical devices often make it difficult to bring innovative health technologies to market. The reimbursement coverage is different for different segments of care because of separate rules at play: inpatient vs. outpatient vs. remote care.

OBJECTIVE

- This study looked at the challenges of reimbursement for novel technologies within existing funding frameworks.

METHODS

- Secondary research identified reimbursement and funding mechanisms for new medical devices in France, Germany, and the United Kingdom (UK). The challenges of reimbursement for innovative devices within existing regulatory framework are summarised.

RESULTS

- Billing for services for treating patients with medical devices is based mainly on the diagnosis-related group (DRG) payment system. DRGs include diagnoses and procedure-related activities such as clinical characteristics and length of stay. DRGs combine patients into groups with comparable economic costs that are also clinically homogeneous.
- However, each country has its own modification of the system. European DRG systems are very heterogeneous as they use different classification variables and algorithms as well as different costing methodologies (Table 1 and Table 2).[1,2]
- New devices are reimbursed under a bundled payment mechanism of an existing DRG-based system, and this system can be insufficient for reimbursement of new, higher-cost innovations (Figure 1, Figure 2, Figure 3).
- Discretionary funding mechanisms are also in place to reimburse new devices temporarily (e.g., New Diagnostic and Treatment Methods Regulation [NUB] reimbursement in Germany) (Figure 2).
- In the DRG-based payment mechanism, the device price is not listed, and there is no product-specific code. However, the DRG code has a financial value, which is claimed by providers (hospitals) from payers (insurance company, CCG, etc). The device price typically negotiated between hospitals and manufacturers may lead to wide variation in the prices hospitals pay for the same product. To reduce this unwarranted price variation, the new NHS Supply Chain manages sourcing and supplying on behalf of NHS as a whole across England and Wales.
- Budget allocation is not based on payment by results but by a fixed-budget distribution system (e.g., block contract in England) negotiated between payer and provider.

Table 1. Usage of DRG-Based Payments Across Different Countries

Country	DRG model	Characteristics
France	DRG	• Used for reimbursement of acute care in hospitals • Certain expensive and innovative drugs and devices are reimbursed in addition to DRG
Germany	G-DRG	• Used as a billing system between almost 2,000 hospitals and over 200 health insurance companies • Remuneration is based on performance at flat rates • Allocation to a flat rate is linked to diagnosis
UK	DRG/HRG	• HRGs are used to determine the pricing for healthcare services in acute care • Block contracts are the dominant payment system in Scotland, Northern Ireland or Wales

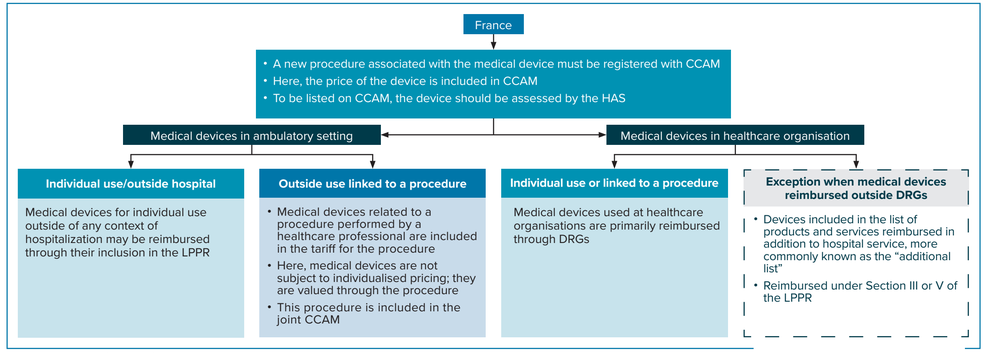
G-DRG = German diagnosis-related group; HRG = health resource group.

Table 2. Component Procedure Codes Used in DRG Payment

Country	Component procedure codes used in DRG payment	Characteristics
France	• ICD-10 of WHO for diagnosis and CCAM codes	• Inpatient or outpatient acute hospital services are financed through a payment-per-case prospective payment system using 2 groupings called GHM and GHS • Cases are assigned to a DRG-like type of patient classification, GHM • GHM has severity adjustment for comorbidities • A nationally fixed tariff (GHS) is then applied to each GHM • GHS tariffs are used to pay public hospitals and a portion of costs in private hospitals
Germany	• The OPS key • ICD-10-GM • OPS and ICD-10-GM form the basis for the flat-rate fee system G-DRG in outpatient and inpatient care	• G-DRG payment covers all costs of a patient's hospital stay, including treatment, drugs, and devices • Nursing fees are excluded and are paid as daily fees • The OPS is revised annually; the updated version comes into effect at the beginning of the year and is valid until the end of the year
UK (England)	• OPCS-4: Used to classify interventions and surgical procedures • OPCS-4 includes all cost of a procedure, including medical device • ICD-10 is used to classify diseases and other health conditions • OPCS-4 and ICD-10 are used for clinical classifications to enable statistical and epidemiological analysis	• ICD-10 and OPCS-4 codes combined with length of stay, type of admission, and hospital location constitute HRG or DRG code which has financial value/tariff • CCGs reimburse hospitals for the care they have provided based on DRG

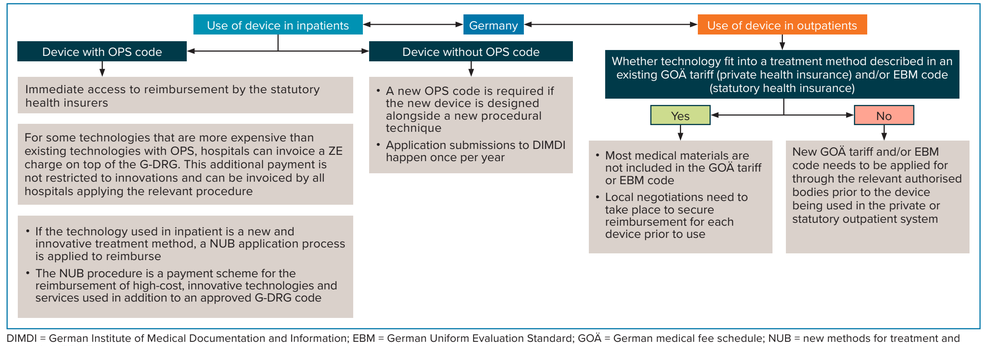
CCAM = Common Classification of Medical Procedures; CCG = Clinical Commissioning Group; GHM = Groupes Homogènes de Malades; GHS = Groupe Homogène de Séjours; ICD-10 = International Statistical Classification of Diseases, 10th Revision; ICD-10-GM = International Statistical Classification of Diseases, 10th Revision, German Modification; OPCS = Office of Population Censuses and Surveys; OPS = Operation and Procedure Code; WHO = World Health Organisation.

Figure 1. Medical Device Reimbursement in France



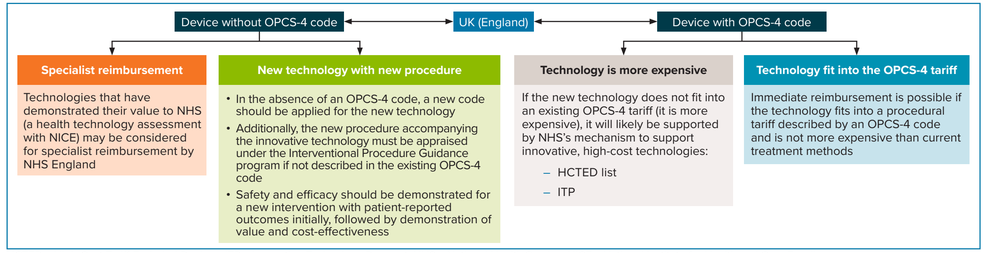
HAS = Haute Autorité de Santé; LPPR = list of products and services qualifying for reimbursement.

Figure 2. Medical Device Reimbursement in Germany



DIMDI = German Institute of Medical Documentation and Information; EBM = German Uniform Evaluation Standard; GOÄ = German medical fee schedule; NUB = new methods for treatment and screening; ZE = Zusatzentgelt.

Figure 3. Medical Device Reimbursement in the UK



HCTED = High-Cost Tariff-Excluded Devices; ITP = Innovation Technology Payment; NHS = National Health Service; NICE = National Institute for Health and Care Excellence.

DISCUSSION

- Managing patients with chronic diseases (e.g., diabetes, chronic obstructive pulmonary disease, heart disease), postdischarge care, and implementing medication adherence using implantable or wearable devices can improve service efficiency while delivering optimum care.
- There are promising indicators to suggest clinical and economic benefits for remote monitoring in various clinical fields.[3-6]
- However, the existing reimbursement pathway is not very clear on reimbursing such offerings. Compared with in-hospital device follow-up, there is no adequate reimbursement alternative for remote monitoring, which puts innovative technologies that offer such a service at a disadvantage.
- Features of DRG-based hospital payment systems are different across healthcare systems.
- Because DRG-based payments are based on measuring hospital activity where various activities are grouped, add-on payments are used to reimburse innovative and expensive technologies, as DRG may not cover the cost of the device.
- Obtaining and updating component procedural codes (CCAM in France, OPCS-4 in England, and OPS in Germany) to support adequate reimbursement for a new treatment are prolonged and expensive processes that involve multiple stakeholders and require evidence generation. In England, interventions will usually have NICE guidelines that need to be referenced to obtain an OPCS-4 code.[7]
- Application of a DRG-based reimbursement system to budget remote care activities is a challenge.

CONCLUSIONS

- The DRG-based payment system in its current form is not compatible with newer technologies looking for follow-up payments (fee-per-case type of payment model) after the initial procedure in an inpatient or outpatient setting.
- Reimbursement of remote monitoring is essential to achieve universal access to care and improve efficiency.
- A DRG system that has been adapted to suit each healthcare market should adopt a payment modality that encourages efficient use of healthcare resources.

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