Proposal for assessment of new health technologies

Important information – read this first!

- Submitted proposals for national health technologies (HTAs) will be published in full. If the proposer thinks there is information necessary for filling out the form, that should not be made public, please contact the secretariat (Nye Metoder) before submission.

  The proposer is aware that the form will be published in its entirety (tick): ☒

- Proposer has filled out point 19 below «Interests and, if any, conflicts of interest» (tick): ☒
- This form serves the purpose to submit proposals for health technology assessment (HTA) at the national level in Nye Metoder - the national system for managed introduction of new health technologies within the specialist health service in Norway. The form does not apply to proposals for research projects. A health technology assessment is a type of evidence review, and for this to be possible, documentation is required, e.g. from completed clinical trials. Lack of documentation may be one of the reasons why the Commissioning Forum (Bestillerforum RHF) does not assign a health technology assessment.
- If the proposal concerns a medical device, the proposer is familiar with the document «Guidance criteria for management of medical devices in the National System for Managed Introduction of New Health Technologies within the Specialist Health Service in Norway» (link) (tick): ☒

Contact information:

Name of the proposer (organization / institution / company / manufacturer)**:**

Medtronic

Name of proposal contact:

Benny Borgman

Telephone number:

+46 72 555 7990

E-mail address:

Benny.Borgman@Medtronic.com

Date and locality:

2023-04-11 Solna, Sweden

1. Proposer's title on the proposal: *
   *This may be changed during the course of the process"

Price negotiation based on ID2016_042 (Pacemakere uten elektrodeledning)

2. Brief description of the health technology proposed to be considered:

Leadless pacemaker in the treatment of atrial fibrillation and bradycardia for patients with high risk of infection.

3. Brief description of current standard of care (SOC) (Which health technology (ies) are currently used. What is the status of the technology (ies)? Whether it provides curative treatment, life extension, etc.)
Will the proposed technology replace or be a supplement to today's SOC?

Conventional internal pacemakers where the pulse generator is attached under the skin and connected to the heart via electrode leads. Proposed technology will supplement SOC.

4. This proposal concerns:

	Yes	No
A brand new and innovative health technology	☐	☒
Anew application, or a new indication for an established method	☐	☒
A comparison between several methods	☐	☒
A technology that is already in use	☒	☐
If yes – technology used in clinical practice	☒	☐
If yes – technology used in research/clinical trials	☒	☐
A re-evaluation of technology used in clinical practice	☒	☐
The technology is relevant for disinvestment	☐	☒

"Please include further details about any use of the technology"

5. This health technology involves (Multiple ticks are possible)

Pharmaceutical	☐
Medical device/IVD medical device that is CE-marked*	☒

CE mark product name: Implantable Pacemaker systems (CE No: I7 039709 1301 Rev. 00) CE Marked as Active Implantable Medical Device (AIMDD)

Medical device/IVD medical device that is not CE-marked	☐
Procedure	☐
Screening	☐

Highly specialized services / national offers	☐
Organization of the health services	☐
Other (describe)	☐

"If relevant, please include who should be responsible for developing the technology."

6. Application of the technology:

Prevention	☐
Assessment and diagnostics	☐
Treatment	☐
Rehabilitation	☐
Specialist health care	☒
Primary health care	☐

"Please give a description here"

7. Responsibility for funding

	Yes	No
Is the specialized health service responsible for financing the technology today?	☒	☐
May the specialized health service become responsible for funding the health technology?	☒	☐

"Please give a further description of responsibility for funding"

8. Is the technology mentioned in the national guidelines or action programs prepared by the Norwegian Directorate of Health?

Yes	No
☐	☒

Relevant guidelines are 2021 ESC Guidelines for cardiac pacing, see question 13 for more details.

9. Does the technology involve the use of radiation (ionizing/ non- ionizing)?

Yes	No
☐	☒

Device is not using radiation.

10. Which discipline(s) does the health technology apply to, and which patients are affected? (Could the health technology also affect other groups (e.g. health personnel or relatives)?)

Patients recommended for single-chamber ventricular pacing but are at high risk of complications following a pacemaker implantation (patients with renal disease, prior infections or malignancies).

11. Which aspects are relevant to the assessment? (Multiple ticks are possible)

Clinical efficacy	☐

Safety/adverse effects	☒
Costs/resource use	☒
Cost-effectiveness	☐
Organizational consequences	☐
Ethical	☐
Legal	☐

12. Please suggest the main scope/objective for the health technology assessment, as well as secondary scopes/objectives (in compliance with question 10). For those familiar with "PICO" (Patient, Intervention, Comparator, Outcome) – please include tentative suggestions for PICO.

This technology was evaluated in 2016 -2018. We suggest entering a price negotiation for:

Population: Patients recommended for single-chamber ventricular pacing but are at high risk of complications following a pacemaker implantation.

Intervention: Leadless pacemaker Micra.

Comparator: Conventional internal pacemakers where the pulse generator is attached under the skin and connected to the heart via electrode leads.

Outcome: Infections, cost-effectiveness

13. Please give a brief explanation of why it is important that the health technology assessment proposed should be conducted.

The evaluation of leadless pacemakers was conducted under the New Methods framework 2016 – 2018. Since then, European guidelines have come out (2021), supporting the use of leadless pacing in certain patient groups. Other European countries have also adopted coverage for leadless pacemakers, at least in certain patient groups.

For example, Austrian HTA body LBI recommends patients with contraindication for transvenous pacemaker or at high risk of complications. Belgian reimbursement authority INAMI approved Micra in patients with an indication for transvenous pacing.

It would thus be valuable for the limited population of Norwegian patients in need of ventricular pacing who have no venous access or elevated risk of a device infection to have access to leadless pacemaker technology.

2021 ESC Guidelines – Cardiac Pacing

Includes recommendation on Leadless pacing for patients at high risk of infection and with no venous access

*Leadless pacemakers should be considered as an alternative to transvenous pacemakers when no upper extremity venous access exists or when risk of device pocket infection is particularly high, such as previous infection and patients on haemodialysis. (*Class IIa)

14. Please comment on the technology that is proposed to be assessed with regard to the following points:

The severity of the disease/condition the health technology targets

A pacemaker is implanted permanently to correct a chronic slow or irregular heartbeat (Bradycardia). Permanent cardiac pacing is the only therapy that effectively treats symptomatic bradycardia. The pacemaker sends electrical signals to the heart to correct the beat. Having a pacemaker improves symptoms caused by a slow heartbeat such as fatigue, lightheadedness, and fainting. Because most of today's pacemakers automatically adjust the heart rate to match the level of physical activity, they may allow patients to resume a more active lifestyle. Cardiac pacemakers have been shown to improve quality of life and to prolong life in some patient populations.

Expected effect

Reduction in infections compared to conventional pacemaker treatment.

Reduction in complications related to lead and pocket

Higher quality of life for active patients for whom a conventional pacemaker requires a change in their activity level due to movement restrictions.

Safety

Please see the safety section in the “Micra transcatheter pacing system report 2018”. In summary, major complication were found to be lower in studies with Micra compared to conventional pacemakers in a cohort of historical control studies. The Micra real world registry also point to a lower level of complications. New safety evidence since 2018 is summarized below and is in line with data and assumptions presented in the 2016 – 2018 HTA.

Claims Data analysis

Micra US Coverage with evidence (CED) Study

Entire study cohort:

Crossley, George, et al. "Leadless versus Transvenous Single-Chamber Ventricular Pacemakers: Three Year Follow-Up of the Micra CED Study." *Authorea Preprints* (2022).

High Risk groups of the Micra CED study

Boveda, Serge, et al. "Two-year outcomes of leadless vs. transvenous single-chamber ventricular pacemaker in high-risk subgroups." *Europace* 25.3 (2023): 1041-1050.

Clinical Studies:

Micra Post Approval Registry - 3 year follow up data of 2817 patients

Garg, Aatish, et al. "Morbidity and mortality in patients precluded for transvenous pacemaker implantation: experience with a leadless pacemaker." *Heart Rhythm* 17.12 (2020): 2056-2063.

Micra European Registry: Micra Acute Performance (MAP) Registry:

Roberts, Paul R., et al. "A leadless pacemaker in the real-world setting: Patient profile and performance over time." *Journal of Arrhythmia* (2023).

European iLEAPER Registry

Mitacchione, Gianfranco, et al. "Outcomes of leadless pacemaker implantation following transvenous lead extraction in high-volume referral centers: Real-world data from a large international registry." *Heart Rhythm* 20.3 (2023): 395-404.

Total number of patients in Norway the health technology is applicable to

The original submission from Medtronic based number of patients on the annual Norwegian VVIR implant rate of circa 800 patients. 10% of these patients are expected to be classified as high risk of infection (patients with renal disease, prior infections or malignancies) equaling 80 individuals per year.

Consequences for resource use in the public health service

Higher costs for acquisition of pacemakers. Lower costs for treating cardiac device infections.

Need for revision of existing national guidelines or preparation of new guidelines

Approval to use the technology in the patient group with high risk for infection would enable closer alignment between Norwegian recommendations and European clinical guidelines – as above.

15. Please provide references to documentation of the health technology's effect and safety (i.e. previous technology assessments). (Up to 10 key references can be provided, please do not send attachments in this step of the process):

1. ID2016_042 (Pacemakere uten elektrodeledning)
2. Glikson, M. et al. "2021 ESC Guidelines on cardiac pacing and cardiac resynchronization therapy." Eur Heart J. 2021 Sep 14;42(35):3427-3520. doi: 10.1093/eurheartj/ehab364
3. Crossley et al. "Leadless versus Transvenous Single-Chamber Ventricular Pacemakers: Three Year Follow-Up of the Micra CED Study." Authorea Preprints (2022).
4. Boveda, Serge, et al. "Two-year outcomes of leadless vs. transvenous single-chamber ventricular pacemaker in high-risk subgroups." *Europace* 25.3 (2023): 1041-1050.
5. Garg, Aatish, et al. "Morbidity and mortality in patients precluded for transvenous pacemaker implantation: experience with a leadless pacemaker." *Heart Rhythm* 17.12 (2020): 2056-2063.
6. Roberts, Paul R., et al. "A leadless pacemaker in the real-world setting: Patient profile and performance over time." *Journal of Arrhythmia* (2023).
7. Mitacchione, Gianfranco, et al. "Outcomes of leadless pacemaker implantation following transvenous lead extraction in high-volume referral centers: Real-world data from a large international registry." *Heart Rhythm* 20.3 (2023): 395-404

16. Please provide the name of the marketing authorization holder/manufacturer/supplier of the health technology (if applicable/available):

Medtronic

17. Marketing Authorization Status (MA) or CE-marking: When is MA or CE- marking expected? If possible, provide the time of planned marketing:

Already have CE

18. Additional relevant information (up to 300 words.)

In 2016 the ordering forum issued STA on leadless pacemakers. In 2018 the decision board recommended to not adopt leadless pacemaker Micra. The working group had adapted the submitted cost-effectiveness analysis, finding an ICER of 1 077 363 NOK for the patient group with high risk of infection. Since then, European clinical guidelines have changed to support limited use of leadless pacemakers for certain patients. Upon updating the cost-effectiveness model with input costs for 2023, but otherwise keeping all variables the same as in the published report from NIPH, we find that the ICER have almost halved from the original result. Medtronic is therefore of the position that the baseline ICER is at a level where it will make sense to move into a price negotiation to see if Norwegian patients with high risk of infection and need of pacing can get access to Micra, in line with European guidelines.

19. Interests and potential conflicts of interests

Please describe the proposer's relationships or activities that may affect, be influenced by, or be perceived by others to be important for further management of the health technology that is proposed assessed. (E.g. proposer has financial interests in the matter. Proposer has or has had assignments in connection with the technology or to other actors with interest in the technology)

Proposer work for Medtronic.