

CARE4CARDI 



## Tele-Monitoring Program - Chronic Heart Failure TMP-CHF

Telemonitoring Chronic Heart Failure -  
*On it's way into OKP*

Münchenstein, April 17<sup>th</sup> 2023

# Care4Cardio® / TMP-CHI addresses gaps in care for severe chronic heart failure (CHF)

## Existing guidelines for CHF

- Known criteria for the detection of deteriorations (decompensations / exacerbations)
- Clear recommendations on patient education
- Effective drug therapy

## CARE4CARDIO

- Strengthening the patient's self-competence /management
  - **Telemonitoring (daily)**
  - **Telecoaching**
- Use of self-management
- Pragmatic integration of monitoring devices (e.g., scales, tablet)
- Use of existing care structures (hospital <->doctors' offices)

## Nevertheless, care in practice is often suboptimal

- Lack of understanding of the disease by the patient
- Poor adherence to therapy
- Failure of the patient to change behavior
- Recognition of acute deterioration too late
- Interface problems (e.g. after hospitalization)

# The care is based on three pillars



## Medical product mecor®

- Data-driven approach
- Clinical Stratification
- Psychosocial stratification
- Statistical risk classification (ACRA)
- Machine learning for continuous risk determination

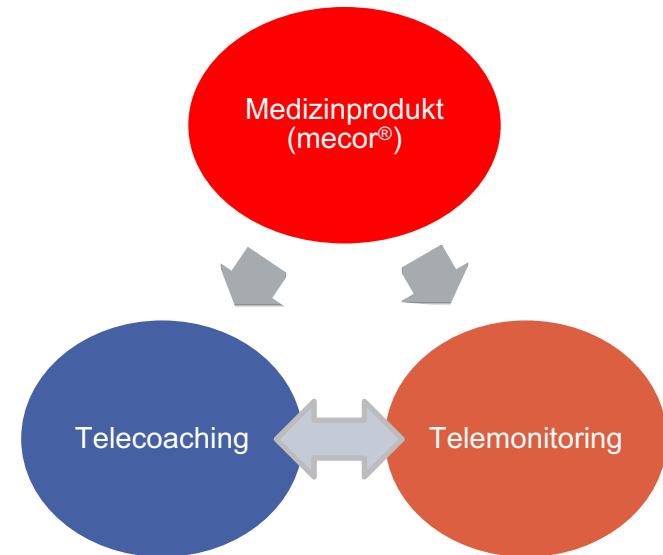
## Telemonitoring

- Patient-individually configured measuring devices and secure data transmission
- Early detection of medically relevant alerts
- Close coordination with treating physicians
- High acceptance and use

## Telecoaching

- Holistic approach (CHF + comorbidities such as COPD, diabetes, CHD, etc.)
- Highly individualized
- Driven by risk stratification, compliance, and degree of self-management

- **Three service components**
  - Medical product mecor®
  - Telemonitoring
  - Telecoaching
- **Service package is key for success**
  - Inseparable linkage
  - Mutual reinforcement
- **Digital und telemedicine services in OKP**
  - effective, purposeful, cost-effective (W-Z-W)
  - Current tariff illustration deficient



- **Telecoaching and Telemonitoring mutually reinforce each others effectiveness.**
- **mecor® software as a medical product ensures quality and consistency of service.**

## Implant-based multiparameter telemonitoring of patients with heart failure (IN-TIME): a randomised controlled trial

*Gerhard Hindricks, Milos Taborsky, Michael Glikson, Ullus Heinrich, Burghard Schumacher, Amos Katz, Johannes Brachmann, Thorsten Lewalter, Andreas Goette, Michael Block, Josef Kautzner, Stefan Sack, Daniela Husser, Christopher Piorkowski, Peter Seggaard, for the IN-TIME study group<sup>1</sup>*

Lancet 2014, 10.1016/S0140-6736(14)61176-4

## Efficacy of telemedical interventional management in patients with heart failure (TIM-HF2): a randomised, controlled, parallel-group, unmasked trial

*Friedrich Koehler, Kerstin Koehler, Oliver Deckwart, Sandra Prescher, Karl Wegscheider, Bridget-Anne Kirwan, Sebastian Winkler, Eik Vettorazzi, Leonhard Bruch, Michael Oeff, Christian Zugck, Gesine Doerr, Herbert Naegele, Stefan Stork, Christian Butter, Udo Sechtem, Christiane Angermann, Guntram Gola, Roland Prondzinsky, Frank Edelmann, Sebastian Spethmann, Sebastian M Schellong, P Christian Schulze, Johann Bauersachs, Brunhilde Wellge, Christoph Schoebel, Milos Tajsic, Henryk Dreger, Stefan D Anker<sup>2</sup>, Karl Stangl<sup>1</sup>*

Lancet 2018, doi:10.1016/S0140-6736(18)31880-4

### Kardiale Aggregate:

#### Hindricks et al. (2014) IN-TIME

- RCT: 664 HI-Patienten mit ICD oder CRT-D (65,5 J.)
- Composite Clinical Score (primär)  
Verschlechterung 18,9% vs. 27,2% (p=0,013)
- 1J-Mortalität (all-cause; sekundär)  
**3,0% vs. 8,2%; HR 0,36** (p=0.004)

### Externe Geräte:

#### Köhler et al. (2018) TIM-HF2

- RCT: 1.571 HI-Patient (+/- Aggregat; 70 Jahre)
- Days lost (CV-KH und Tod; primär)  
4,88% vs. 6,64%; Ratio 0,80 (p=0,04)
- 1J-Mortalität (all-cause; sekundär)  
**7,98% vs. 11,34%; HR 0,70** (p=0,028)

# World's largest study of telemedicine care in CHF (12,130 patients analyzed) by HCSG



K. Knoll<sup>1</sup>, S. Rosner<sup>1</sup>, T. Trenkwalder<sup>1</sup>, C. Lennerz<sup>1</sup>, D. Dittrich<sup>2</sup>, C. Kloss<sup>2</sup>, M. Doerr<sup>3</sup>, H. Schunkert<sup>1</sup>, W. Reinhard<sup>1</sup> - (1) German Heart Center of Munich, Munich, Germany (2) Health Care Systems GmbH (HCSG), Pullach I. Isartal, Germany (3) University Hospital of Greifswald, Greifswald, Germany

**Aims**  
To investigate the effectiveness of a combined telemonitoring and telecoaching programme for chronic heart failure patients at high risk for hospitalisation compared to usual care in a real life setting. The applied telehealth programme consisted of regular individualised telecoaching sessions as well as daily remote telemonitoring of heart failure signs and symptoms.

**Methods**  
Between January 2018 and September 2020, 6,065 heart failure patients were enrolled in a combined telehealth programme and retrospectively compared to a propensity matched usual care group (n= 6,065). All participants were members of a statutory health insurance. Median follow-up was 442 days (IQR 309-681) . Endpoints were all cause mortality, number and duration of hospitalisations.

**Results**  
After 1 year the combined telecoaching and telemonitoring programme significantly reduced all-cause mortality probability compared to usual care (11.0 vs. 5.8 %,  $p < 0.001$  ). The corresponding number-needed to treat to prevent one death in one year was 19.3. In addition, the number of hospitalisations for heart failure (17.9 vs. 21.8 per 100 patient years,  $p < 0.001$ ) and all cause hospitalisations (129.0 vs. 133.2,  $p = 0.015$ ), as well as their duration (2.0 vs. 2.6 days per year  $p < 0.001$ , and 12.0 vs. 13.4 days per year  $p > 0.001$ , respectively) were significantly lower in the telehealth group than in the usual care group.

**Conclusion**  
In ambulatory heart failure patients at high risk for hospitalisation, a combined telemonitoring and telecoaching programme led to a reduction of heart failure hospitalisations and all-cause mortality compared to standard care.

## ESC Congress, Barcelona, 08/2022

6,065 participants in the combined HCSG telemonitoring and telecoaching program were compared with 6,065 patients from usual care matched using propensity score matching.

### Results:

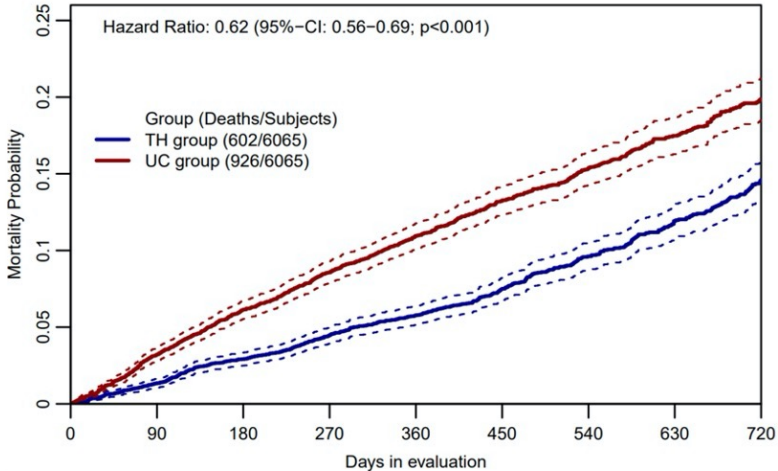
- Mortality reduced by 47% after one year (from 11.0% to 5.8%;  $p < 0.001$ )
- Fewer hospitalizations for heart failure
- Shorter hospital stays

➤ mecor® corresponds to C4C  
➤ Results transferable

# Significant mortality reduction in the telemonitoring group



## Reduced mortality in the telehealth group



Patients at risk  
(events in 90-days period)

TH group	6065	5981 (82)	5686 (94)	4977 (86)	4193 (63)	2836 (65)	2222 (57)	1721 (51)	1339 (46)
UC group	6065	5867 (196)	5496 (174)	4743 (134)	3947 (114)	2659 (89)	2061 (56)	1582 (46)	1239 (41)

ESC Congress  
Onsite & Online



Quelle: K. Knoll et al. „Telemedical monitoring and coaching improves survival and hospitalisation rates in heart failure“ ESC Congress, Barcelona, 26 August 2022



## W EFFECTIVE

- Halves mortality
- Reduces hospital days
- Reduces hospital cases
- Increases self-care (3.9 EHFS cBS-9 points: clinically and statistically relevant)

## Z PURPOSE- FUL

- Relevant compared to the alternative (care without Care4Cardio®)
- Suitable in Switzerland (2-3% of all insured persons)
- Legally, socially and ethically suitable
- Quality guaranteed

## W COST- EFFECTIVE

- Average hospital expenditure p.a. 19'900 CHF
- Savings 10-30% (2,200 to 5,200 CHF):  
On average app. 3,700 CHF p.a.
- Average costs as OKP service: 1'400 CHF



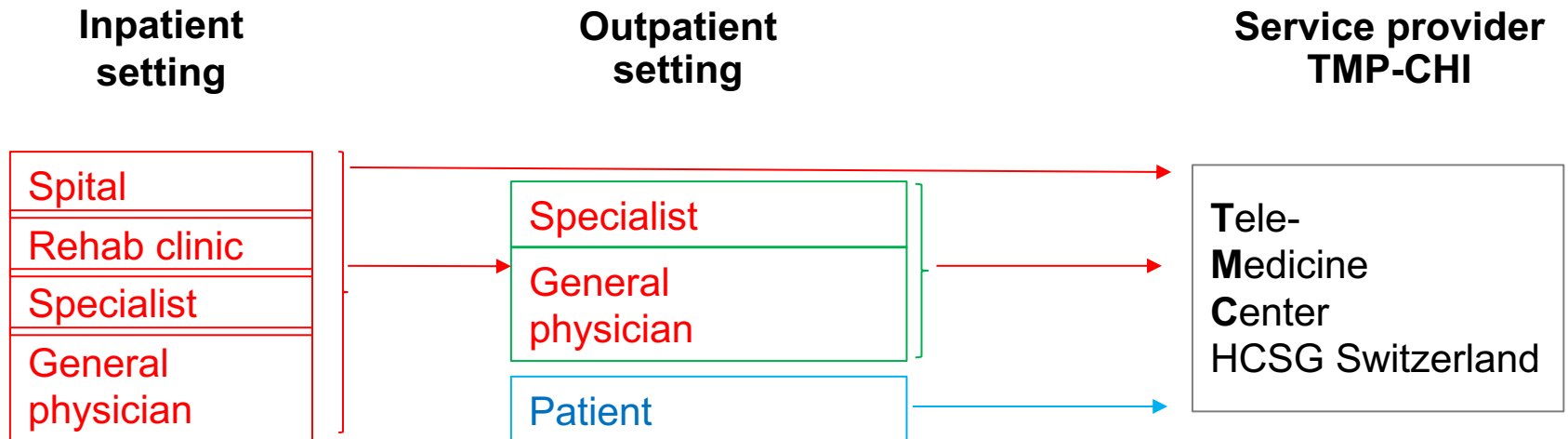
- We expect the **BAG to include TMP-CHI as a medical service** – most probably 2024.
- **HCSG will prepare an accompanying efficacy study** to prove the benefits of TMP-CHI in Switzerland.
- **HCSG will endeavor to be approved as medical service provider for telemedical services.**
- **HCSG will start to talk with the purchasing groups** to elaborate on suitable tariffs.
- The **HCSG is preparing organization and evolve service** for the implementation in OKP.

# BACKUP

# Challenges of reimbursement for telemedical service packages in TARMED

TARMED in force since 2004 - not reflecting digital development

- Challenges
  - TARMED does not contain an up-to-date representation of telemedical and digital services
  - Recording of service packages as with TMP-CHI within single service tariff difficult
  - Currently no clear practice and no case law as yet with regard to the implementation of the new provision on flat patient rates



- Providers from the inpatient or outpatient setting verify that the patient meets the indications for a TMP-CHI and refer/recommend the patient to the TMC (not a prescription in the strict sense)
- The patient comes to the HCSG TMZ on his or her own (without a referral from another provider)