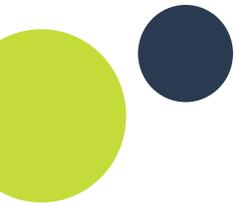


Annual report  
2021

Research centre for digital  
mental health services

“Our main goal is to increase the use and impact of digital psychological interventions”





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## Summary



**Tine Nordgreen**  
Foreword by the centre director

We are happy to share with you the first promising results and a wide range of our activities at the Research centre for digital mental health services. Our overall goal is to increase the use and impact of digital mental health services. You may well say that the pandemic has illustrated the need for such a development with an increase in the “sense of urgency”. However, with more than ten years of experience working with digital mental health services- we still meet barriers that needs to be addressed and managed.

First, the cost-effectiveness of digital mental health services is sometimes taken for granted. The fact is that we know very little about cost-effectiveness of digital health services from the international literature, and almost nothing in our own Norwegian context. This makes its challenging for the private and public sector to invest in this mode of delivery of health services. Second, there is a lack of decision support when considering going from pilots to large scale implementations. This transition may be an unpredictable and costly journey- and systematic decision support systems has the goal to reduce some of the (negative)

surprises along the way. And finally, implementation! How can we address the barriers and build on the facilitators when we are going to increase the uptake and use of digital mental health services? These are the core questions in Forhelse, and as you will see, and we have started to address these through our research and innovation activities.

Through this annual report you will see that all partners in Forhelse are especially well suited and motivated to work on these topics - from the perspectives of end-users, health services, business partners and researchers. Our main goal for 2021 has been achieved- and this is only the beginning.

Do you have any questions and comments?  
Don't hesitate to contact us at  
[forhelse@helse-bergen.no](mailto:forhelse@helse-bergen.no)

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Tine Nordgreen, PhD  
Centre Director  
Research centre for digital mental health services, Helse Bergen



## Jonny Klemetsen

Reflections from the chairman of the board

The 11th of June, 2021 was a milestone for research driven mental healthcare. The board of directors in the Norwegian Research Council (NRC) decided to finance the Research Centre for Digital Mental Health Services) hosted at Haukeland University Hospital. Through this, Haukeland University Hospital strengthens its position as the leading centre of experts in Norway within the development of digital mental healthcare services. It is a result of the hard work done by Hans Olav Instefjord and Tine Nordgreen. The result will be better healthcare services for the Norwegian population, but also the fact that we can develop more skilled workplaces and increase the innovation among the centre's private and public partners.

The centre has an ambitious goal of increasing the use of digital psychological interventions to 15% in 2025 and 20% in 2030. The global pandemic situation has made the adoption of digital healthcare services easier than a few years ago. This has given us important traction, but in order to secure the success it is crucial to create digital healthcare services that have a documented effect through research.

The centre works purposefully with innovation through user partners who have different roles in the delivery chain of digital mental healthcare services. It includes everything from competence development, service development and technology development. We are still early in

the development cycle of digital mental healthcare services and the development potential is huge. This implies that the outlook for the industry to deliver the digital mental healthcare services to an international market is strong. It will strengthen the commercial user partners' ability to invest more in the development work within digital mental healthcare services.

2021 was a start-up year for the centre and the focus has been to mobilize resources, initiate the work and customize an operating model to a global pandemic. Many digital meetings have been completed with good attendance. Although we have had good digital meetings, I think most people prefer to be able to meet physically more often than we did in 2021. The work in the various work packages has also started according to the plan and the beginning of 2022 is characterized by good progress and great enthusiasm in the projects. The major challenges for 2022 are to establish good communication of the centre's vision, goals and results so that we build awareness of the centre, spread knowledge and competence to those who currently provide mental healthcare services in Norway. All partners must contribute to this if we shall achieve the goals for 2025 and 2030. We look forward to 2022 and the results of this important work.

Chairman of the board  
Jonny Klemetsen  
Youwell AS

## Centre vision and objectives

The primary objective of the Research Centre for Digital Mental Health Services (Forhelse) is to increase the use and impact of digital psychological interventions. The goal is to have a minimum of 15% of all psychological interventions accessed digitally by 2025, growing to 20 % by 2030. This will increase access to evidence-based mental health care and have a substantial positive impact on health outcomes, burden of disease, healthcare costs, eHealth industry and society as a whole. There is a large body of evidence documenting the efficacy of digital psychological interventions for highly prevalent mental disorders (e.g., depression and anxiety) and somatic disorders (e.g., pain, irritable bowel syndrome, and cancer), however the uptake of these treatments in routine mental healthcare is low.

Digitalization of the healthcare services is needed in order to meet future needs for effective and sustainable healthcare services. However, the current use of digital healthcare services in routine care is low, and their impact on the

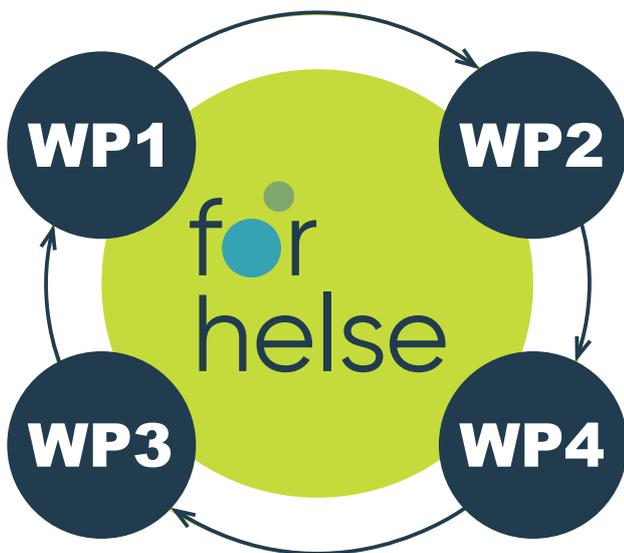
industry, healthcare, and society is limited. Forhelse will move the research on digital psychological interventions from the interventions themselves, to research on the impact of the interventions in real world settings. Forhelse will promote innovation and sustainable value creation as we will conduct beyond state-of-the-art research on effectiveness, cost-effectiveness, early assessment of innovation potential and effective implementation strategies.

Forhelse brings together the five most ambitious and relevant eHealth businesses in Norway, four national and international leading groups of researchers in the domain of innovative digital healthcare services in Norway and in Europe, five public healthcare services with nationally leading positions in the domain of digitalization, one innovative private non-profit healthcare service integrating mental and somatic health services, and therapists and patients with first-hand experience with digital interventions.

Primary objective
<b>The primary objective of the Research Centre for Digital Mental Health Services (Forhelse) is to increase the use and impact of digital psychological interventions. The goal is to have a minimum of 15 % of all psychological interventions in Norway accessed digitally by 2025, growing to 20 % by 2030</b>
Secondary objectives
(1) Establish a minimum of 12 studies based on knowledge gaps addressed by the user partners.
(2) Compare clinical effectiveness of three digital interventions to treatment-as-usual in beyond state-of-the-art pragmatic controlled research trials in routine care.
(3) Compare the cost-effectiveness of digital interventions to treatment-as-usual in Norway, in beyond state-of-the-art research trials in routine care.
(4) Conduct innovative and beyond state-of-the-art research studies on early Health Technology Assessment in the businesses and the healthcare services.
(5) Compare the effectiveness of tailored implementation strategies to implementation-as-usual in a beyond state-of-the-art pragmatic controlled multicentre trial.
(6) Establish and further develop productive business-research-healthcare collaborations that attracts new user- and research partners during the centre period.
(7) Communicate and disseminate knowledge, results, tools and interventions to businesses, researchers, healthcare services, decision makers, patient and professional organizations

## Research plan/strategy

In Forhelse we bring together an interdisciplinary and cross-sectorial team covering the main stakeholder perspectives and beyond-state-of-the-art expertise. We have researchers and eHealth businesses, (e)Health services, and end-users (patients, clinicians) who will work together to increase the use of affordable, accessible, effective and empowering digital psychological interventions. This will be reached through research and innovation activities including clinical evaluations in routine care (Work package 1); economic evaluations (Work package 2); framework for decision support systems through early health technology assessment (Work package 3) and assessing and addressing implementation barriers and strategies (Work package 4).



### WP1 Effectiveness

#### OBJECTIVE

In WP1 we will develop and evaluate the clinical effectiveness of three digital interventions: digital follow up before and after intensive treatment at Helse in Hardanger; Internet-delivered intervention for adolescents with anxiety in Bergen Municipality; digital rehabilitation of cognitive complaints during and after cancer and cancer treatment.

The expected results of this work package will be a first-time documentation of the effectiveness of three innovative products and interventions in routine care, including patient evaluation, negative effects and other relevant information to decision makers in healthcare.

#### MOTIVATION

State-of-the-art research shows that therapist- and self-guided digital psychological interventions are effective for a variety of mental disorders (e.g., depression and anxiety) and other somatic disorders (e.g., pain, irritable bowel syndrome and cancer). Effectiveness trials of digital psychological interventions show that positive treatment effects remain also when provided as part of routine mental healthcare. Also, therapist guided digital interventions for common mental disorders result in similar outcomes when compared head-to-head with face-to-face therapies. Patients find the treatment credible and suitable for their problems, and patients who otherwise do not seek treatment, perceive digital interventions as less stigmatizing than face-to-face therapy. Research also shows that digital interventions are three times more efficient than face-to-face therapy with regard to the use of the therapist time.

However, the current state of effectiveness research in real-world settings for digital psychological interventions has several limitations. First, there is limited systematic user-involvement in the development and evaluation of digital interventions in routine care, which is necessary for making the interventions relevant and acceptable for the end-users. Second, effectiveness trials are reported merely from the perspective of increase or decrease in primary and secondary outcomes on group levels. The change in e.g., sick-leave is rarely reported, neither is a more subjective evaluation of the intervention or other knowledge needed by the decision makers. Third, there is a limited use of controlled research designs in real-world healthcare settings. Randomized controlled trials are challenging to conduct in routine care due to natural changes in this context. Consequently,

the majority of effectiveness results are from observational studies and open trials in routine care, leading to ambiguous interpretations of the results. Fourth, there are limited reports on the optimal degree of guidance for different patient groups. The question about 'what works for whom' is important, but as of today, we do not have the knowledge about predictors that will help us recommend specific intervention (components) to a specific patient or help us make recommendations for service models for digital psychological interventions. Fifth, there are only a few trials reporting the positive and potentially negative effects of psychological interventions. This data is important for the public, the patients, the healthcare professionals and decision makers. Taken together, there is a need to improve the way we examine and report effectiveness in routine care trials in order to obtain reliable results from various stakeholder perspectives.

## WP2 Cost-effectiveness

### OBJECTIVE

The objective of WP2 is to evaluate the cost-effectiveness of digital psychological interventions in routine care, in Norway. Both treatment and preventive interventions will be examined. Empirical evidence is lacking specifically when taking implementation in routine care and long-term aspects into account. WP2 address factors important to achieve cost-effective implementation of digital psychological interventions, applies a societal perspective and uses modelling and simulation techniques for analytic purposes.

### MOTIVATION

The implementation of digital psychological interventions in routine healthcare settings is motivated by several anticipated improvements for patients and population health. There is a potential to reach a large number of people through digital technology. When compared directly, digital psychological treatments show effect comparable with face-to-face therapy, while costs are expected to be lower. Patients save travel

expenditures and time, and efficiency of service provision is believed to increase. However, the treatment costs will depend on several factors related to the organizational implementation of digital treatment services. WP2 will assess the wide scale implementation of eMeistring in psychiatric specialist health-care and use data from different locations to evaluate factors that contribute to cost-effective implementation. In addition to a focus on treatment costs, effects including health related quality of life and the potential of long-term patient outcomes, will be thoroughly examined. The long-term aspect is of specific importance for prevention initiatives. WP2 will assess the long-term cost-effectiveness of MammaMia, an application aiming to prevent post-partum depression and now provided by primary health care across the country, by extrapolating results from short-term randomised trials and taking a societal perspective.

## WP3 Early Health Technology Assessment (HTA)

### OBJECTIVE

The objective of WP3 is to develop methods to evaluate the value of health technology innovation projects at the early stages of innovation processes. This includes specific analytical tools to evaluate the expected value to patients, to public healthcare institutions/ organizations, to health technology suppliers and to society respectively. It is furthermore to apply the methods to conduct early HTA analysis of selected innovation projects in collaboration with partners at the centre. The purpose of this is three folded: 1) to support the innovation process by doing structured, high quality assessments of the expected value contribution of the innovation to its core stakeholders, to help the project team navigate their further development strategy, 2) to support resource allocating decision-makers with adequate evaluation methods for investment or procurement considerations, and 3) to further improve the early HTA methods.

**MOTIVATION**

The standard method for evaluation of new health technologies, products and services is HTA. This method is useful for procurement-oriented decisions when the product is approved by regulatory authorities and can be commercialized. At that point of the innovation process, there is a substantial amount of data available for HTA summative evaluations. There is a lack of a similar method to evaluate health technology innovations in their early stages of development. In public healthcare systems, value contributions of innovations must be assessed in relation to multiple stakeholder perspectives. The method must accordingly include a collection of specific evaluation methods fitted to the relevant evaluation criteria of the given stakeholder category. The ambition is furthermore to develop and improve the quality and the usefulness of the method to a level where it may be approved of as a standard evaluation tool for early stage health technology assessments in Norway, as well as internationally.

**WP4 Implementation****OBJECTIVE**

WP4 addresses the need for effective strategies to promote the integration and uptake of evidence-based digital psychological interventions in routine care. The goals are:

- 1) to further develop and apply tailored implementation strategies, 2) to examine the effectiveness of implementation strategies for digital psychological interventions in routine practice,
- 3) to examine determinants of practice, i.e. any factors that facilitate or hinder implementation of digital intervention in routine care and
- 4) to further develop and refine the Integrated Theory-based Framework for Intervention Tailoring Strategies-toolkit to Norwegian context.

**MOTIVATION**

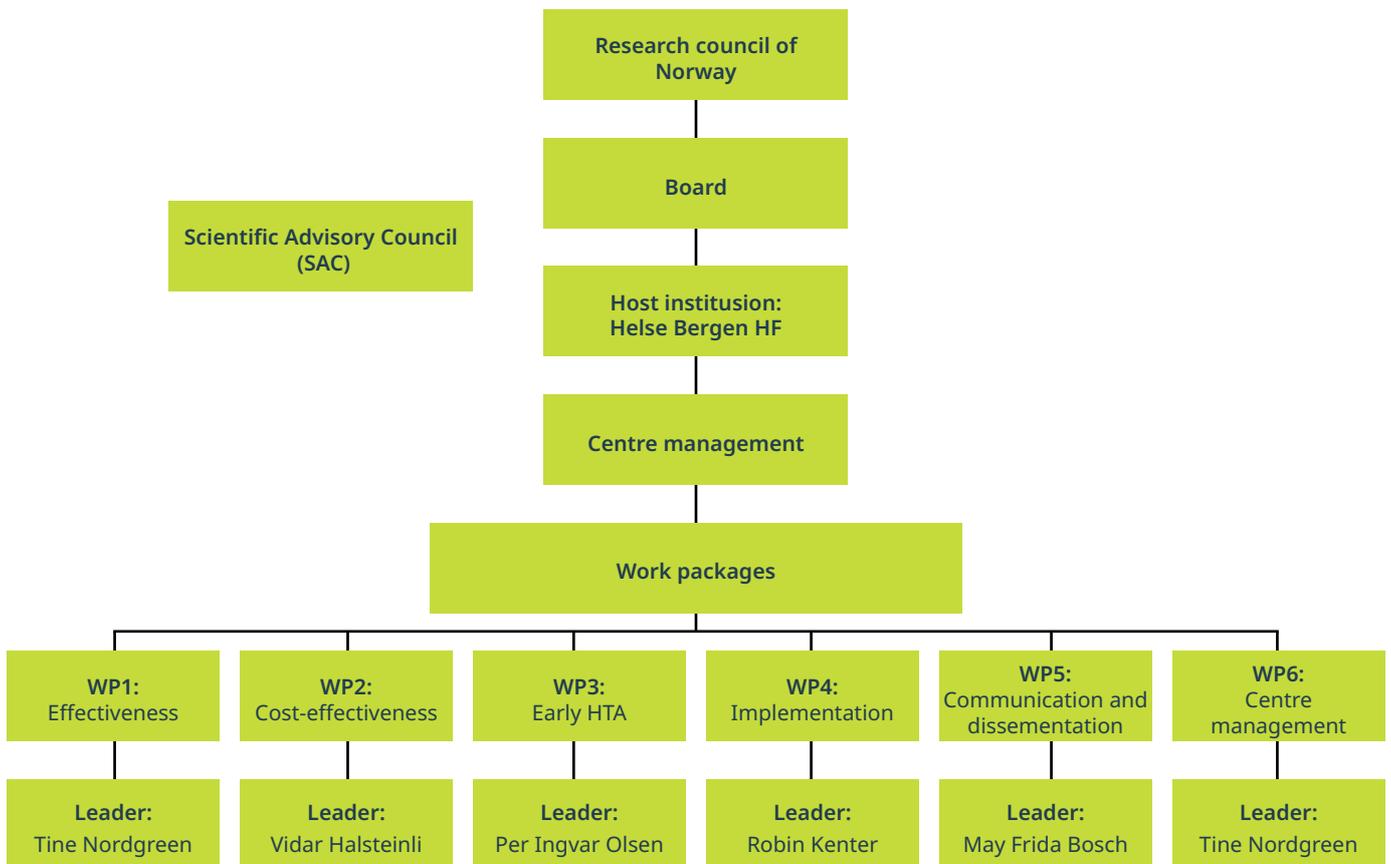
The implementation of digital psychological interventions in routine healthcare settings has proven to be low, slow and costly, as only a limited number of these interventions make it sustainably into routine care. Although digital psychological interventions are often well researched, evidence alone does not guarantee the effective use of an intervention in routine healthcare settings. In order to overcome local barriers to implementation, suitable strategies need to be applied. As every implementation setting is unique, implementation strategies that are tailored to local determinants, the context and the setting in which the implementation takes place, might advance implementation outcomes. WP4 aims to evaluate the effectiveness of tailored implementation in integrating and embedding digital psychological interventions in routine healthcare.

For evaluating the implementation efforts WP4 uses Normalisation Process Theory (NPT) as a framework. NPT explains how innovations become a normal part of practices in terms four constructs that are universally applicable to any normalisation process of complex interventions in healthcare, including digital psychological interventions. With the use of tailored implementation strategies, WP4 aims to increase the provision of digital psychological interventions in routine care.

# Organisation

## Organisational structure

As seen below we have a clear organisational structure from the Research Council of Norway on top as our funder, via the host institution to the steering group, centre management and WP's. In addition, we have three entities that will advise us along the way on scientific goals, overall goal and user perspective.



<b>Board</b>	
<b>Jonny Klemetsen</b> (Chairman of the Board)	Youwell AS
<b>Hans Olav Instefjord</b> (Host Institution)	Divisjon of psychiatry, Helse Bergen HF
<b>Heidi Aabel</b>	CheckWare AS
<b>Elin Ulleberg</b>	eMestring Nidaros og St. Olavs hospital
<b>Jørn Jacobsen</b>	eMestring Vestfold, Vestfold hospital
<b>Thomas Hoholm</b>	BI Norwegian Business School
<b>Kjell Ø. Petersen</b>	Changetech AS
<b>Sissel Børve</b>	Helse i Hardanger
<b>Erik Hellestøl</b>	Lifekeys AS
<b>Siri Bjørvig</b>	Norwegian Centre for E-health Research
<b>Silje Haga</b>	Center for Child and Adolescent Mental health, Eastern and Southern Norway (RBUP)
<b>Helge Ræder</b>	University of Bergen
<b>Alette Hilton Knudsen</b>	Bergen Municipality



*From the board meeting 26.10.2022, hosted by Youwell AS.*

## Centre management 2021

The centre management consists of centre director Tine Nordgreen, centre coordinator May Frida Bosch and administrative manager Anne Mette Søviknes.



Tine Nordgreen,  
Centre Manager



Anne Mette Søviknes,  
Administrative Leader



May Frida Bosch,  
Centre Coordinator

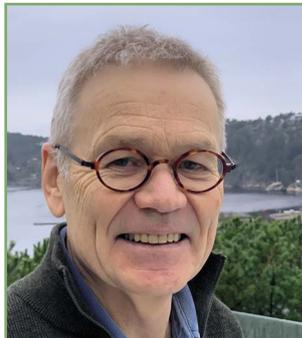
## WP managers

### WP1



Tine Nordgreen,  
Helse Bergen

### WP2



Vidar Halsteinli,  
St. Olavs hospital

### WP3



Per Ingvar Olsen,  
BI Norwegian Business School

### WP4



Robin Kenter,  
University of Bergen

### WP5



May Frida Bosch,  
Helse Bergen

### WP6



Tine Nordgreen,  
Helse Bergen

WP managers and the centre management meet digitally every other Friday for 1 hour. Themes for the bi-weekly meetings start with general updates, planning of centre activities, discussion of challenges, coordination of research and reporting to NFR.



*Digital WP manager meeting in 2021*

## Partners



## SAC

The Scientific Advisory Council (SAC) was established in 2021 and will meet annually. Currently the SAC includes the following internationally renowned researchers: within the field of digital interventions and health services.

The SAC will gather for the first time in Bergen 19-20 May, 2022.



Nick Titov,  
Professor,  
Macquarie University,  
Australia



Lee Ritterband,  
Professor,  
University of Virginia,  
USA



Jan Abel Olsen,  
Professor,  
UiT Norwegian Arctic  
University, Norway



Heleen Riper,  
Professor,  
Vrije Universiteit  
Amsterdam,  
Netherlands

## Our offices

Forhelse is located in Bergen at Haukeland University Hospital (HUH), hosted by the Division of Psychiatry at the hospital. Both our offices as our administration are located at HUH. We have room for both the centre management staff as well as room for joint meetings and room for our partners. Due to the Covid-19 pandemic we have not been able to utilize the office rooms to its full potential as of yet.



## Other collaborators

Since our opening in December 2020 we have consistently and frequently been contacted by researchers, research organisations and user partners that would like to collaborate with the centre in one form or another. In 2021 we have developed procedures that has been approved by the board which will regulate different levels of collaborations.

In 2021 we have established collaborations with the following partners with shared interests:



Norwegian  
Smart Care  
Cluster



Centre for  
Connected Care



Alrek helseklynge

### DigiFlexHelse

DigiFlexHelse is a digitalization project hosted by the Department of Global Public Health and Primary Care at the University of Bergen (UiB). In this project (2022-2023, financed by Kompetanse Norge) UiB, Helse vest IKT, municipalities in the western region and Forhelse at Helse Bergen are cooperating to create a digital version of a continued education program in health informatics and digitalization offered at UiB (20ECT's). The aim of the project is to provide an asynchronous, flexible continued education at a master's level within the fields of health informatics and digitalization. Digital health services are one of the five main topics that will be covered in the continued education program. This project supports the main aim of Forhelse as it will increase the competencies in digitalization of health services at both the level of primary and secondary care.

### UngMeistring

UngMeistring is a new research and innovation project (2022-2026) affiliated with Forhelse funded by the Research Council of Norway under the Pilot Health program. The project was granted 25 million kroner by the Norwegian Research Council. The project includes business, and health service partners as well as researchers. The main goal of the project is to develop and evaluate eight digital online and game-based therapist-guided and self-guided psychological interventions for adolescents between 13-18 years. These are aimed at the general population, and the primary and specialized health services. The project is led by Helse Bergen. The project will support the main aim of Forhelse as it will develop the first digital psychological interventions for adolescents that may be used in routine care.

In addition the research and innovation projects that goes in parallel with Forhelse, our activities are directly linked to experiences and results from former NRC and ERC funded projects.

## INTROMAT

# INTROMAT

The INTROducing Mental health through Adaptive Technology (INTROMAT; 2016-2022; project owner HUH) project aimed to improve public mental health with innovative technologies and psychological treatments. The project was funded through NRC ICT Lighthouse. Both researchers (Nordgreen, Kenter, Kahlon, Myklebost) and user partners (eMeistring, Youwell, CheckWare, ) from the INTROMAT project set out for further participation in the Forhelse project. In the INTROMAT project the focus was on innovative and experimental development of digital interventions for psychological disorders. Methods for intervention development, and knowledge that was generated in the project will be developed further in Forhelse.

## ImplementAll (IMA)



### ImpleMentAll

The EC funded IMA project (2017-2021) addressed the need for effective strategies to promote the uptake of iCBT. The project's goal was to develop, apply and evaluate tailored implementation strategies in 18 organizations from 11 countries. Key researchers (Vis, Riper) from the IMA project collaborate with Forhelse, and share their experience and expertise on implementing digital treatments for further development and research beyond state-of-the art on tailored implementation strategies for digital psychological treatments.

## SFI-C3



Center for Connected Care (C3) is a Centre for Research-based Innovation (SFI) hosted by Oslo University Hospital from 2015 until 2023. The centre focuses on research and innovation within the area of digital remote care in both primary and specialist healthcare, and in somatic as well as mental health areas. This includes work on early stage service design and technological and organizational design, on public procurement of innovative solutions and on challenges of implementation, integration and scaling of such innovative solutions in emerging platform-infrastructure systems that aims at mobilizing market based as well as internal healthcare system innovative resources. Among these activities, C3 has done extensive work to develop a standard methodology for early stage HTA assessments of innovation projects in public healthcare. In Forhelse we build upon the research on this methodology, and the experiences and results so far in the use of the method. Per Ingvar Olsen is a WP manager in both C3 and Forhelse.

## Gender balance

The centre has focused on safeguarding the gender equality perspective in line with NFR's program Balance (2017-2022) - Gender balance in top positions and research management, the EU's framework program Gender equality and Responsible Research and Innovation (RRI). This gender equality perspective is further taken into account in Forhelse in, among other things; recruitment of researchers, design of the board and SAC, and further participation in national and international conferences. User partners in the centre consists of business partners and health service partners, where we have many women in the latter category who naturally reflect the gender balance elsewhere in the health sector. In further activity related to the health services, we will strive to equalize the gender balance associated with Forhelse's work.

Persons	F/M %	Persons	F/M %	Persons	F/M %
Board	47/53	SAC	25/75	157	100/0
Work package leaders	50/50	Pr. 30/11-21 - PhD og post doc's	67/33	907	57/43
Research partners	55/45	User partners	61/39		

# Scientific activities and results 2021

## WP1: Effectiveness

**Lead:** Tine Nordgreen

**Partners:** Helse Bergen, University of Bergen with user partners Youwell AS, Lifekeys AS, Bergen Municipality, Helse i Hardanger AS

**PhD:** Smiti Kahlon and Sunniva Brurok Myklebost

### Background

State-of-the-art research shows that therapist- and self-guided digital psychological interventions are effective for a variety of mental disorders and other health disorders. Effectiveness trials of digital psychological interventions show that positive treatment effects remain when applied in routine mental healthcare, and that guided digital interventions for common mental disorders result in similar outcomes when directly compared to conventional face-to-face therapy. Patients find the digital treatment credible and suitable for their problems, and patients who otherwise do not seek treatment, perceive digital interventions as less stigmatizing than traditional face-to-face therapy. However, the current state of effectiveness research in real-world settings for digital psychological interventions has several limitations. First, there is limited systematic user-involvement in the development and evaluation of digital interventions in routine care. Second, effectiveness trials are reported merely from the perspective of increase or decrease in primary and secondary outcomes on group level. Third, there is a limited use of controlled research designs in real-world healthcare settings. Fourth, there are limited reports on which patient groups will benefit from various degrees of guidance. Fifth, there are only a few trials reporting the positive and potentially negative effects of psychological interventions. Taken together, there is a need to progress the way we examine and report effectiveness from routine care trials in order to obtain valid and reliable results that are relevant to different stakeholders.

In this work package, we aim to develop and examine the effectiveness of digital psychological interventions in routine care. The project includes three subprojects:

1. Development and evaluation of digital anxiety treatment for youth in Bergen Municipality
2. Digital follow-up of patients before and after in-patient treatment in Helse i Hardanger
3. Digital treatment of cognitive difficulties during and after cancer treatment.

### Research activities and results

1: In 2021 we started the development of the digital anxiety treatment for youth in Bergen Municipality. Needs of end-users and health personnel regarding technology, security, interaction and content, has been examined in several workshops. Researchers and health personnel from Bergen municipality have collaborated on establishing the content of the intervention which resulted in a logic model (a map of the intervention). A post doc related to this project will be recruited in April 2022.

2: Data collection regarding symptoms, needs, satisfaction and change over time from patients before and after their treatment stay in Helse Hardanger has started. Data from a total of 250 patients has been collected and more data will be collected in 2022. A PhD candidate related to this project will be recruited in April 2022.

3: The work on the development of digital treatment for cognitive problems after cancer treatment is still in its planning phase and consists mainly of establishing connections with other related and relevant projects. A post doc related to this project will be recruited in October 2022.

**Approaches and tools**

Through a systematic and continuous assessment of end-users needs and preferences in the development and evaluation processes, we aim to develop new digital psychological treatments. By using the Person-Based Approach (PBA) framework, that integrates quantitative and qualitative data on the relevant health problems, we ensure high end-user involvement when developing and evaluating digital interventions. The needs related to Human Computer interaction has mainly been assessed and presented by Youwell AS.

**Collaborations**

The activities in WP 1 builds on and further develop evidence approaches for user-involvement and intervention planning applied in the ICT Lighthouse INTROMAT project. The beyond state-of-the-art effectiveness trials will build on experiences of the INTROMAT project.



*Workshop in Bergen Municipality.*

## WP2: Cost-effectiveness

**Lead:** Vidar Hallsteinli

**Partners:** St. Olavs hospital, University of Bergen, Helse Bergen with user partners Center for Child and Adolescent Mental health, Eastern and Southern Norway, CheckWare AS, Changetech AS, eMeistring Bergen/Vestfold/Nidaros

**PhD:** Zareen Abbas Khan

**Post doc:** Jørn Heggelund

### Background

Digital psychological interventions have the potential to reach a large number of people through digital technology. Documentation of cost-effectiveness is becoming increasingly important as the health services have a large demand and limited personnel and budgets. Strong evidence on the cost-effectiveness of digital psychological interventions in routine mental healthcare is lacking. Currently, no cost-effectiveness trials have been reported from eHealth services in Norway. In this work package, we explore cost-effectiveness of digital interventions in four real-world healthcare settings, three eMeistring clinics in specialist mental healthcare and MammaMia (prevention of postnatal depression) in primary mental healthcare. Economic evaluations will apply modeling and simulation techniques, which allows us to take alternative treatment modalities, alternative service models and long-term perspectives into account.

### Research activities and results

In 2021 our PhD candidate has been accepted to the PhD program and the research protocol for examining the cost-effectiveness of MammaMia has been approved by NTNU. Data collection of baseline measurements has started and will be analyzed in 2022.

The planned cost-effectiveness evaluation of eMeistring will be performed as a register-based multicenter study, with both a short-term and long-term perspective. In 2021 the work on this subproject consisted of formalizing the research project, getting all the agreements and ethical approvals in place and planning data collection on resource use.

### Approaches and tools

The cost-effectiveness of MammaMia will be examined alongside a cluster-randomized clinical trial, while the economic evaluation of eMeistring clinics will be based on patient information collected as part of routine mental healthcare. The economic evaluations will be conducted from a healthcare and a societal perspective.

### Collaborations

In collaboration with WP4, we carried out baseline measurements on implementation activities, the placement of Internet-delivered services in the participating clinics, referral to the services and the amount of staff and patients using the services.

## WP3: Early HTA

**Lead:** Per Ingvar Olsen

**Partners:** BI Norwegian Business School, Helse Bergen, Norwegian Centre for E-health Research with user partners, Lifekeys AS, Youwell AS, Bergen Municipality and Helse i Hardanger AS

### Background

In order to ensure that decision makers have the right information to optimally allocate resources, the health value of new digital psychological interventions must be assessed at an early stage in the innovation process. Such value contribution assessments furthermore must relate to the needs of different stakeholders in the public healthcare system, such as patients and their next of kin, healthcare providers, healthcare institutions and organizations and society on broad. Early HTA has the potential to address and evaluate innovative solutions and factors that can reduce risk and control costs in the early stages of innovation processes, highlighting future gains, and thus potentially enhance efforts to further develop and implement new kinds of interventions that target the needs. Currently, there is a lack of verified methods for such evaluations in early innovation stages in the context of public healthcare.

In this work package, we aim to collect data from stakeholders and experts in order to evaluate their health value contributions, and to support decisions as well as management processes related to innovation projects. We build up on the research of SFI-C3 that has aimed to develop an early stage decision support methodology. The method will assist decision makers by assessing expected future health value, addressing risk and making stage-wise changes during the developmental processes of digital psychological interventions.

### Research activities and results

This work package is a continuation of the work done at SFI Center for Connected Care which will end its activities in June 2023, where after the work on early HTA will be continued in the area of mental health in SFI Forhelse. The main academic resources will be recruited in the spring of 2023. In the meantime, we have started a first collaborative project with Helse i Hardanger, by educating and training the staff in using the method in applied projects, to start gathering data and do tentative analysis with the support of C3 researchers in Oslo.



*Meeting with Helse i Hardanger*

## WP4: Implementation

**Lead:** Robin Kenter

**Partners:** Helse Bergen, University of Bergen, Norwegian Centre for E-health Research with user partners Youwell AS, CheckWare AS, eMeistring Bergen/Vestfold/Nidaros, Bergen Municipality and Mage tarm-skolen.

**PhD:** Beate Standal

### Background

Few digital psychological interventions make it into routine care and it is clear that the impact of implementation efforts is limited and below expectation. Translation of knowledge from efficacy studies to implementation in routine care falls behind. Some examples of successful implementation of digital interventions in routine healthcare settings do exist, however the uptake is low, slow and costly. This is also true for Norway, where the goal of national large-scale implementation of digital psychological interventions has not (yet) been achieved.

Implementation strategies in healthcare often are too general in nature and their impact is limited. Translation of eHealth research findings and successful implementation into clinical care is scarce. There is a need for research on effective implementation strategies for digital mental health services. In a mixed method multi-center implementation trial, WP4 will examine determinants of practice and the effects of strategies for implementing digital psychological intervention into routine care settings.

### Research activities and results

The first focus of WP4 has been on examining the barriers to increasing the use and impact of digital psychological interventions. We have begun to access this in the eMeistring clinics, using a qualitative multi-tiered approach (individual, organizational and societal level). Data is collected from therapists and (clinic) leaders, through individual semi-structured interviews (N=10) and focus groups (N=3). In the analysis of the data, the focus will be placed on the interplay between the different levels.

In 2021, we started preparations for the use of the 'Integrated Theory-based Framework for Implementation Tailoring Strategies'-toolkit in the participating clinics.

In Mage-tarmskolen, we started the data collection on participant characteristics and outcomes, which will be used for predictions of outcome analysis in 2022.

### Approaches and tools

Qualitative research methods will be applied in examining the barriers and facilitators of implementing digital psychological interventions into routine care.

For the second part of the work in this WP, we build upon the work from the EU ImplementAll consortium and will test the generic ItFits-toolkit in an innovative and controlled trial, comparing (community guided) tailored implementation to implementation-as-usual. Preparations for this study are in progress.

### Collaborations

In collaboration with WP2, we collected baseline measurements of the service organization in eM clinics and their current implementation activities and implementation goals. This resulted in a report which will be used for the Implementation as Usual assessment and as background for the analysis of qualitative data.



*PhD student, Beate Standal, presenting her project on a researcher meeting in September 2021*

## Joint gatherings

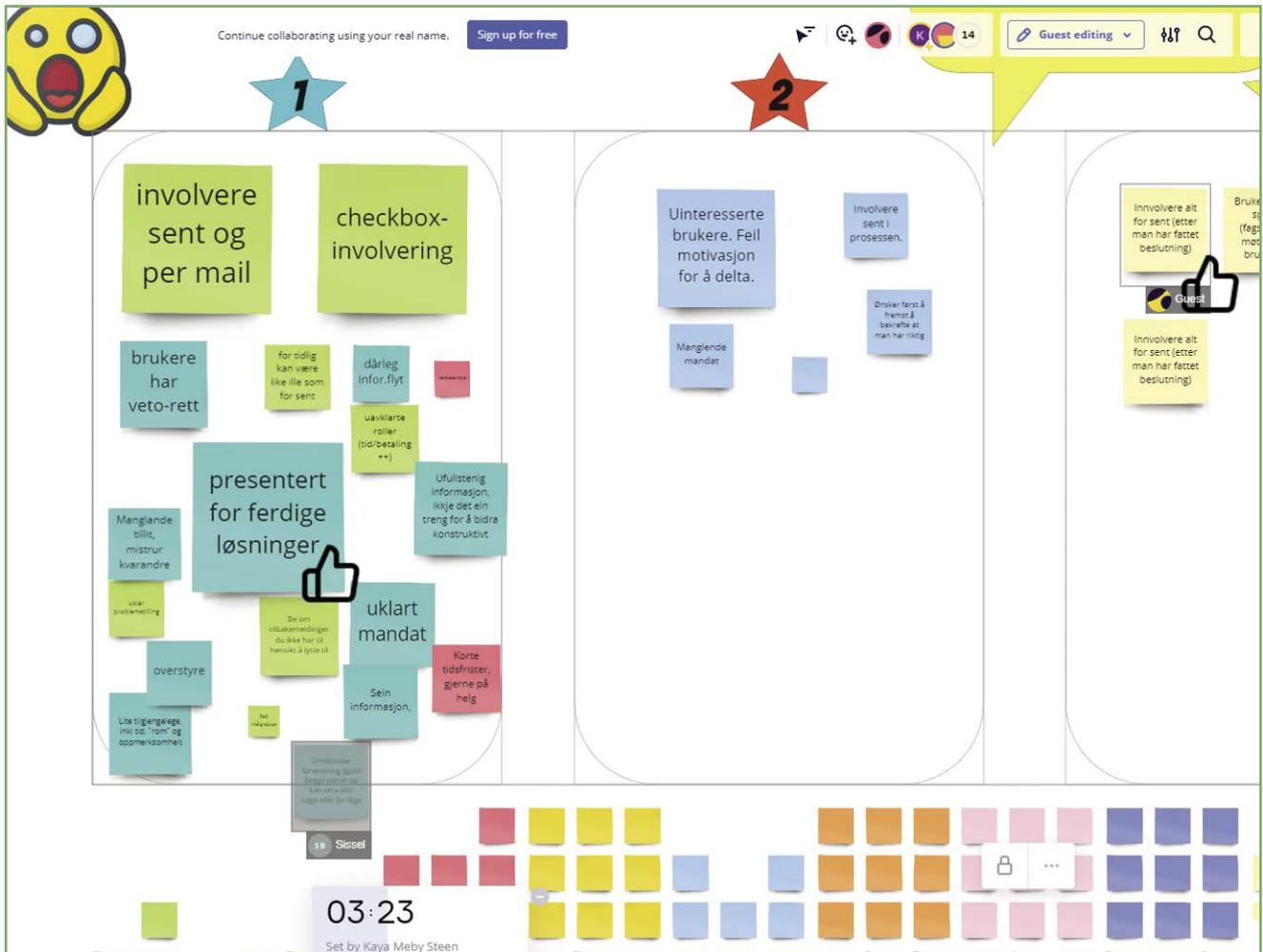
In 2021, we arranged seven joint gatherings for all partners, one of which was physical and the rest digital.

Themes we have addressed at these gatherings were the operationalization of the center's success criteria's (KPI's), assessment of risks and preventive activities, user involvement, assessment of future innovations and work plan for the coming years, among others. Since the meetings have mainly been digital, we have had variations in the format of the meetings - and have therefore used different tools. For example, Google documents and Miro boards have been useful for this purpose. In one meeting we had a key note from Professor Paul Iske who talked about brilliant failures.

Feedback from the partners shows that the joint gatherings, in addition to a variety of sub-project meetings, are perceived as useful and important for collaboration across partners. In addition to digital meetings we will aim to meet physically once every six months.



*Physical meeting in Bergen September 2022*



Miro board



## Brilliant Failures<sup>©</sup>

Innovating together, Failing together, Learning together

Prof. dr. Paul Louis Iske, Maastricht University, Stellenbosch University  
Chairman Personalised Healthcare Catalyst Foundation  
CFO (Chief Failure Officer), Institute of Brilliant Failures

Paul Iske, Brilliant Failures

## International cooperation



International collaboration with former members of the Implementall consortium with Christiaan Vis (VU) and Jordi Piera Jimenez (Director of the Digital Health Strategy Office at Catalan Health Service, Spain) in WP4. Vis contributes to the design of research protocols and assistance in the multicentre studies. Jordi Jimenez is one of the developers of the original Itfits toolkit and contributes with thoughts about adaptation for the Norwegian Itfits.

**Christiaan Vis** is Research associate and Ph.D. candidate in Implementation Research in the field of eMental Health at the VU University of Amsterdam in the Netherlands. His research focuses on processes that play a role in the implementation and up-scaling of evidence-based psychological interventions in routine mental healthcare practice. More specifically, his research focuses on the interplay of effectiveness and implementation research including health benefits, patient safety, perspectives of patients and healthcare professionals, organizational changes, costs and the wider context including reimbursement, legal, and ethical issues. Vis is one of the developers of the Itfits-toolkit and was the scientific coordinator of the EU's Implementall project. In CMMH WP4 he contributes with the further development of the toolkit and in the multicenter study.

## User involvement



The centre has employed me, Stine Hope Spjeld as a user representative in a 20% position. The centre has focused on user involvement and the user perspective since the start-up of the centre, and I have participated in all joint gathering meetings, board meetings and I have been involved by the management in strategic decisions and assessments.

On the 17th of June, a separate joint gathering meeting was held with the theme «user involvement». Here I gave a presentation on user involvement and user advice. The presentation comprised topics and clarifications of concepts within user participation, and general information about user participation in research. This with the aim of creating a common understanding, and highlighting the user perspective and how to best achieve real and good user participation.

In addition, a draft mandate was presented in 2021 for an intended user council in Forhelse. This was further developed in order to systematize how to include user involvement in Forhelse. Helse i Hardanger gave a presentation on their established user council, and the gathering ended with a mini workshop where the participants got to share visions, experiences and practical tools.

The centre director and the centre coordinator have collaborated and participated in meetings where the aim was to create a separate user council at the system level in the centre. Mandate for a user council, guidelines and principles for good and real user participation have been prepared and adopted by the board.

Prior to this process, we have obtained written and oral information about user participation in research, and contacted other user councils/ organization of user participation at service and system level in preparation for systematizing user involvement in the centre. The centre coordinator has also taken up courses for user participation aimed at research in November 2021, and shared learning with the user representative afterwards.

At the end of 2021, the centre was contacted by Alrek's health cluster with questions about participating in a collaborative project with the goal of establishing a resource and competence centre for user participation where the goal is that the structure / organization of user involvement should be useful and appropriate for research, partners and user representatives. The project is led by Berit Angelskår, cluster facilitator in Alrek health cluster, and consists of representatives across the public sector, research, education, clinic, user organizations and business actors with experience in user participation. This is an important and very relevant project to gather and build expertise on user participation in research, and I participate in this project as a representative of Forhelse. Based on these activities and new insights we have now decided to reconsider whether we will establish our own user council or if there are alternative ways to ensure high-quality and systematic user involvement.

User participation in research is too important to be done in a hurry, and I am glad we slowed down the process and take the time to participate in this very exciting project which I think can help us get a good basis for good user participation for all parties involved.

Stine Hope Spjeld  
User representative  
Forhelse

## Recruitment

After the digital opening seminar of the Centre in December 2020, there have been many recruitment activities in 2021. In a centre like Forhelse there is a need for a wide range of competencies and talents, some as researchers, some as administrators and some as project leaders. Here we will present those who were recruited for research positions in 2021.

### Beate Standal



#### PhD Candidate WP4 and UiB (2021-2025)

Beate Standal is a PhD candidate at the University of Bergen. She is affiliated with Work Package 4 at the Research centre for digital mental health services (SFI) in Bergen.

The objective of Beate's PhD project is to explore what is needed to implement eMeistring for moderate symptoms of anxiety and depression in routine care. eMeistring is a therapist guided

Internet-delivered intervention for anxiety and depression currently being offered in some routine care clinics and is in the process of being implemented at several new outpatient clinics in Norway. The studies in Beate's PhD aim to understand the barriers and facilitators related to implementation at the individual, organizational, and societal level from the perspectives of leaders and therapists in specialized mental health services, and end-users of the services. An important framework to sum up the PhD is to look at the interplay between the different levels. The studies will be performed within a qualitative framework.

Beate holds a BCs in Economics and Business Administration from the Norwegian School of Economics, Bergen and is a clinical psychologist from the University of Bergen.

#### Main Supervisor:

Inger Lise Teig - University of Bergen

### Zareen Abbas Khan



#### PhD Candidate WP2 and NTNU (2021-2025)

Zareen is a PhD candidate at NTNU, Trondheim. She is a part of the SFI team at Regional Centre for Healthcare Improvement at St. Olavs Hospital in Trondheim.

The objective of Zareen's PhD project is to perform an economic evaluation of Mamma Mia. Mamma Mia is an app that aims to prevent perinatal depression. The app is currently

undergoing a randomized controlled trial to evaluate the efficacy of offering the app along with support from healthcare personnel as opposed to the app being used by pregnant mothers on a self-guided basis. Zareen will use the data from this RCT to evaluate the app's cost-effectiveness in both the short and long terms.

In addition to the economic evaluation of Mamma Mia, Zareen is interested in how factors related to implementation of digital healthcare solutions influence their costs. To this end, she is performing an implementation-related cost analyses for both eMeistring and Mamma Mia.

Zareen holds an MSc in Global Health from NTNU, Trondheim and a Master of Public Affairs from The University of Texas at Austin.

#### Main Supervisor:

Vidar Halsteinli – St. Olavs Hospital, Trondheim

## Jørn Heggelund



### **Postdoctoral Researcher WP2 and St. Olavs Hospital, Trondheim University Hospital (2021-2028)**

Jørn Heggelund is a postdoctoral researcher in the SFI team at Regional Centre for Healthcare Improvement at St. Olavs Hospital in Trondheim.

The objective of Jørn's postdoc project is to evaluate the implementation of digital health interventions in terms of service characteristics,

effectiveness, quality and cost. The project aims to establish a framework to monitor and evaluate digital health interventions in order to guide decision-making process and evaluate the return on investment.

The project is mainly working with the digital psychological intervention "eMeistring", that is a guided internet-delivered treatment for moderate depression, panic disorder and social anxiety disorder. The project is collaborating with Nidaros DPS, Bjørgvin DPS, DPS Vestfold and Checkware AS.

Jørn Heggelund is an exercise physiologist and holds a Ph.d in clinical medicine from NTNU, Trondheim. Jørn has extensive research and clinical experience from the field of physical exercise and mental disorders.

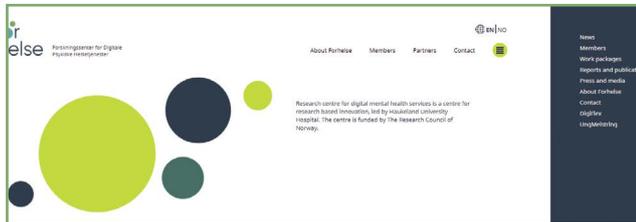
## Kristian Kidholm



Professor and head of research at Centre for Innovative Medical Technology (CIMT) at Odense University Hospital, has been appointed for supervision of researchers at the Regional

Centre for Health Care Development (RSHU) at St. Olavs Hospital – Trondheim University Hospital, for the period 2021-2025. Kristian Kidholm's research is focused on assessment of the value of digital health technologies and selection of methods and research designs for studies of the outcomes of digital Health. He will collaborate on planning and development of research activities in WP2 Cost-effectiveness, and he will participate in research meetings in the Centre for Mobile Mental Health in general.

## Communication and dissemination activities



The centre's most important tool for day-to-day communication is our website, [www.forhelse.no](http://www.forhelse.no). In 2021, we published about 20 articles, a number we aim to double in the coming year when the activities in the centre increases.

In addition, the centre has an active Facebook and LinkedIn account where we promote our new website content, in addition to the promotion of partner activities such as conferences, relevant media news and promotion of job advertisements. The activity on these platforms is increasing, and we will continue to use them for dissemination purposes.



### NORSRII 2021

23th of September the centre organized NORSRII (Norwegian Society for Research on Internet Interventions) conference. Which is the Norwegian Branch of the European (ESRII) and International Society for Research on Internet Interventions (ISRII).

We were lucky as the conference was arranged in a period where it was possible to meet in person.

NORSRII 2021 was the third conference of this kind in Norway. More than 60 people were enrolled; and we had 14 presenters from all regions of Norway as well as two from abroad. Research from health and ICT projects were presented. Our industry partners were invited to promote their work at the conference, and one partner chose to do so.



## Presentation at the Implementall conference

Dr. Robin Kenter PhD – postdoctoral research fellow at the Department of Clinical Psychology at the University of Bergen, Norway held an **oral presentation at the Implementall conference:**

'The Norwegian perspective – planned use of the ItFits-toolkit by the Centre for Mobile Mental Health, in seeking to increase the use and impact of digital psychological interventions in Norway'- The topic of the conference was the complexity of implementation processes in the healthcare industry.



## Survey

In March 2021 we conducted our first survey among our partners. The goal was to assess the needs among our partners, especially the user partners (health services and industry). All partners responded and the main findings regarding the needs and motivation to be a part of the centre were as follows:

- To gain knowledge that can improve the use and impact of our services/products
- To develop new digital interventions
- To establish the cost-effectiveness of our products and services
- To learn from the other partners
- To ensure systematic user involvement
- The partners wanted to present their services/products at the center website forhelse.no and in social media

The input from the survey were used as a basis for discussion of improvements at the joint meetings, and the development and monitoring of the success criteria and risks of the centre.

### Attachment to the report:

- *Personnel*
- *Accounts*
- *Publications*

# Attachments

## A1 Personell

Key researchers		
Name	Institution	Main research area
Tine Nordgreen	Helse Bergen HF	WP 1 Effectiveness
Vidar Halsteinli	St. Olavs hospital	WP 2 Cost-effectiveness
Per Ingvar Olsen	BI	WP 3 Early HTA
Robin Kenter	UiB	WP 4 Implementation
Filip Drozd	RBUP	WP 2 Cost-effectiveness
Silje Marie Haga	RBUP	WP 2 Cost-effectiveness
Monika Gullslett	NSE	WP 3 Early HTA / WP 4 Implementation
Linn Støme	OUS/BI	WP 3 Early HTA

Postdoctoral researchers with financial support from the Centre budget				
Name	Nationality	Period	Sex	Topic
Jørn Heggelund	Norwegian	2021-2028	M	WP 2

Postdoctoral researchers working on projects in the centre with financial support from other sources					
Name	Funding	Nationality	Period	Sex	Topic
Robin Kenter	RCN	Dutch	2020-2022	F	WP4

PhD students with financial support from the Centre budget				
Name	Nationality	Period	Sex	Topic
Beate Standal	Norwegian	2021-2025	F	WP4
Zareen Abbas Khan	Pakistani	2021-2025	F	WP2

PhD students working on projects in the centre with financial support from other sources					
Name	Funding	Nationality	Period	Sex	Topic
Smiti Kahlon	RCN	Norwegian	1.12.2020 - 2022	F	WP1
Sunniva Myklebost	Inkind	Norwegian	1.12.2020 - 2022	F	WP1

As of December 2021 we have no personnel in the following categories

- Visiting researchers
- Master students

## A2 Statement of Accounts

(All figures in 1000 NOK)

Founding	
Partner or partner category	Amount
The Research Council	3 804
Helse Bergen HF - host institution	1 252
Research partners	1 234
User partners - health services	2 443
User partners - industry	4 210
<b>Total</b>	<b>12 942</b>

Costs	
Partner or partner category	Amount
Helse Bergen HF - host institution	3 845
Research partners	2 444
User partners - health services	2 443
User partners - industry	4 210
<b>Total</b>	<b>12 942</b>

Allocation per WP						
Partner or partner category	WP1	WP2	WP3	WP4	WP5	WP6
Helse Bergen HF - host institution	737	-	-	157	1 220	1 731
Research partners	-	1 397	140	907	-	-
User partners - health services	647	638	-	1 158	-	-
User partners - industry	2 956	477	19	758	-	-
<b>Amount per WP</b>	<b>4 341</b>	<b>2 512</b>	<b>158</b>	<b>2 981</b>	<b>1 220</b>	<b>1 731</b>

### Note:

#### *Two institutions have more than one partner type*

Helse Bergen HF - host institution is also legal partner for user partners: IBS, HUH and eMeistring HUH. The table above lists the host institutions costs only for the research part of Helse bergen. For clarity we have included the numbers for Helse Bergen HF as one legal entity below.

Costs	
Partner type	Amount
Helse Bergen HF - host institution research partner	3 845
Helse Bergen HF - host institution user partner health services IBS HUH	699
Helse Bergen HF - host institution user partner health services eMeistring HUH	302
<b>Total Helse Bergen</b>	<b>4 846</b>

St. Olavs Hospital HF is also a legal partner for one user partner, eMeistring Nidaros. The table above contains numbers for St. Olav as a research partner in the research partner category, and eMeistring Nidaors as user partner in the user partner - health services category.

### A3 Scientific publications

No	Publication	Partner
1	De Witte NAJ, Carlbring P, Etzelmueller A, Nordgreen T, Karekla M, Haddouk L, Belmont A, Øverland S, Abi-Habib R, Bernaerts S, Brugnera A, Compare A, Duque A, Ebert DD, Eimontas J, Kassianos AP, Salgado J, Schwerdtfeger A, Tohme P, Van Assche E, Van Daele T. (2021). Online consultations in mental healthcare during the COVID-19 outbreak: An international survey study on professionals' motivations and perceived barriers. <i>Internet Interventions</i> , 26. doi: 10.1016/j.invent.2021.100405.	HUH
2	Kling, Johanna; Nordgreen, Tine; Kvalem, Ingela L.; Williamson, Heidi; . Feragen, Kristin B. (2021). Recruiting difficult-to-engage groups to online psychosocial interventions: Experiences from an RCT study targeting adolescents with a visible difference. <i>Contemporary Clinical Trials Communications</i> , Volume 24. <a href="https://doi.org/10.1016/j.conctc.2021.100869">https://doi.org/10.1016/j.conctc.2021.100869</a> .	HUH
3	Schønning A, Nordgreen T. Predicting Treatment Outcomes in Guided Internet-Delivered Therapy for Anxiety Disorders-The Role of Treatment Self-Efficacy. <i>Front Psychol</i> . 2021 Oct 21;12:712421. doi: 10.3389/fpsyg.2021.712421.	HUH
4	Veiledet selvhjelp og internetbehandling for barn og ungdom, kap 17, s 459-474. I Håndbok i kognitiv atferdsterapi i behandling av barn og unge. Tine Nordgreen og Solfrid Raknes	HUH



# för helse

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Haukeland Universitetssykehus