MasterMind

Deliverable D7.6

Final pilot evaluation

MASTERMIND
"MAnagement of mental health diSorders Through advancEd technology and seRvices – telehealth for the MIND"
GA no. 621000

European Commission

Project co-funded by the European Commission within the ICT Policy Support Programme

ICTPSP

PROJECT ACRONYM:	MasterMind
CONTRACT NUMBER:	621000
DISSEMINATION LEVEL:	Public
NATURE OF DOCUMENT:	Report

TITLE OF DOCUMENT:	Final Pilot Evaluation
REFERENCE NUMBER:	D7.6
WORKPACKAGE CONTRIBUTING TO THE DOCUMENT:	WP7, WP3
VERSION:	V2.0
EXPECTED DELIVERY DATE:	31st December 2016
DATE:	12th June 2017
AUTHORS:	Erlend Bønes (NST) Mette Maria Skjøth (RSD) Christiaan Vis (VU University Amsterdam) Anne Etzelmüller (Schöen) Ane Fullaondo (KRONIKGUNE) Siri Bjørvig (NST)

REVISION HISTORY			
REVISION	DATE	COMMENTS	AUTHOR
V1.0	31st March 2017	Version for issue	
V1.1	3rd May 2017	Tables updated with new data	Erlend Bønes
V2.0	12th June 2017	Final version. Correction of error on suicide ideation data	Erlend Bønes

Outstanding Issues: None

Filename: MasterMind D7.6 v2.0 Final pilot evaluation

Statement of originality:

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

The information in this document is provided as is and no guarantee or warranty is given that the information is fit for any particular purpose. The user thereof uses the information at its sole risk and liability.

Executive Summary

This document contains the final report for WP7 (ccVC) – videoconference for collaborative care and treatment of depression in the MasterMind project. It uses the approach based on MAST methodology.

The MasterMind project aims to make high quality treatment for depression more widely available for adults suffering from the illness through the use of ICT. A major cause of morbidity worldwide, depression is characterised by its high incidence, social cost and the proven clinical effectiveness of ICT in its treatment.

This report documents the status of the ccVC trials at the end of the project. It has the same structure as the final reports for work package 5 and 6.

The data in the report is based on both quantitative and qualitative data. The data provides the possibility to understand the meaning (qualitative) of the facts (quantitative) for both patients, the healthcare professionals and organisations, and the interplay of all stakeholders. Some of the data in the deliverable have been provided directly for the report, while other data were extracted from the project's central database at Arsenàl.IT. The report includes lessons learned and recommendations from all involved sites.

At the end of the project, 878 patients have received treatment using ccVC or a combination of ccVC and cCBT. Information on 769 of these patients has been uploaded to the database, and has been part of the data analysis in this report. In addition, data on 196 healthcare professionals involved in ccVC has been uploaded to the database; this provided the basis for background information about the professionals involved in the project. A number of healthcare organisations have provided data on the organisational aspects with respect to ccVC.

Many of the pilot sites encountered problems that interfered with the recruitment of participants with respect to VC. These problems were mainly related to implementation, engaging healthcare professionals, ethical approval, procurement activities, and the technical solutions. All sites have worked hard to meet these challenges; the most important corrective actions have been information and continuous training activities to make professionals involved, and support for GPs in order to help and collaborate with them.

Overall, patients report a high perceived satisfaction with ccVC, and the service to be well integrated. The majority of the health professionals are satisfied with the services and would use them again. 73% of professionals report that the service meets their needs in the treatment of patients.

All sites have experienced some kind of challenges with respect to ccVC during the process, but also learnt some very valuable lessons for future work with implementation and sustainability of the VC service.

Some of the lessons learnt are:

- It is important to have a well functioning technical solution that meets the needs of the patients and professionals. Good network connections are needed.
- It is important to perform some laboratory testing before deploying the solution in real life to avoid problems.

- It is important to have close contact and cooperation with the involved team, including physicians, nurses, GPs, technical staff and management.
- Preparatory planning is essential, together with a clear development plan before starting implementation.
- Staff and technicians must be sufficiently trained. Training sessions take time, and must be planned and scheduled carefully.
- It is important to introduce patients and relatives to the technical solution, and to support the patient in using it.
- Information for patients and partners is a key issue.
- National guidelines are needed e.g. with respect to law – what is allowed and what is required in the use of VC with patients at home.

The results from MasterMind demonstrate that VC can be used as a tool in connection with treatment of depression, and that eHealth solutions can be considered very well in the area of mental health.

Table of Contents

EXECUTIVE SUMMARY 3

TABLE OF CONTENTS 5

1. INTRODUCTION 9

1.1 Purpose of this document 9

1.2 Background 9

1.3 Structure of document 9

1.4 Glossary 10

2. METHODOLOGY 11

2.1 Study design 11

2.2 Data management 12

2.3 Analysis plan 13

2.3.1 Descriptive statistics 13

2.3.2 Cost analysis: budget impact analyses 15

2.3.3 Qualitative analysis 15

3. DOMAIN 1: HEALTH PROBLEM AND CHARACTERISTICS OF THE APPLICATION 21

3.1 Introduction 21

3.2 Results 21

3.2.1 Prevalence of depressive disorder 21

3.2.2 Current mental healthcare settings targeting depression 23

3.2.3 Interventions implemented in WP7 in MasterMind 38

3.2.4 Recruitment and reach of MasterMind services 41

3.2.5 Demographic characteristics of patients (core) 43

3.2.6 Demographic characteristics of healthcare professionals (core) 45

3.2.7 Demographic characteristics of mental healthcare organisations (core) 48

3.3 Summary and conclusions 49

4. DOMAIN 2 AND 3: SAFETY AND CLINICAL EFFECTIVENESS 51

4.1 Introduction 51

4.2 Results 52

4.2.1 Clinical safety 52

4.2.2 Clinical effectiveness in symptom reduction 53

4.2.3 Clinical change 55

4.2.4 Quality of life 55

4.2.5 Appropriateness of MasterMind services in alleviating depressive disorder in routine practice 57

4.2.6 Appropriateness of MasterMind services based on focus group interviews 59
4.3 Summary and conclusions 60
5. DOMAIN 4: PATIENT AND HEALTHCARE PROFESSIONAL PERSPECTIVES 62
5.1 Introduction 62
5.2 Results – Patient perspectives 62
5.2.1 Patient's perceived satisfaction 62
5.2.2 Patient's perceived usability 65
5.3 Results – Healthcare professional's perspectives 66
5.3.1 Healthcare professional's perceived satisfaction 66
5.3.2 Healthcare professionals' perceived usability 67
5.3.3 Perceived acceptability of MasterMind services in routine practice based on qualitative data (focus group interviews) 69
5.4 Summary and conclusions 70
6. DOMAIN 5: ECONOMIC ASPECTS 72
6.1 Introduction 72
6.2 Results 72
6.2.1 Characteristics of mental healthcare organisations (subset) 72
6.2.2 Investments 73
6.2.3 Recurring operational costs 74
6.2.4 Reimbursement modalities 75
6.2.5 Cost savings (description) 76
6.2.6 Budget Impact Analyses 76
6.2.7 Economic sustainability of services in routine practice 78
6.3 Summary and conclusions 78
7. DOMAIN 6: ORGANISATIONAL ASPECTS 80
7.1 Introduction 80
7.2 Results – Healthcare professionals 81
7.2.1 Leadership engagement 81
7.2.2 Innovation climate 83
7.2.3 Perspective on implementation 86
7.3 Results – healthcare organisations 86
7.3.1 Leadership engagement 86
7.3.2 Perspective on implementation 87
7.4 Summary and conclusions 88
7.4.1 Implementation 88
7.4.2 Leadership management 88
7.4.3 Perspective on implementation (Organisation) 89

8. DOMAIN 7: SOCIO-CULTURAL, ETHICAL AND LEGAL ASPECTS 90

9. TRANSFERABILITY ASSESSMENT 91

10. PROBLEMS ENCOUNTERED AND LESSONS LEARNED 92

10.1 RSD 92

10.2 PHB 93

10.3 GIG 95

10.4 SALUD 97

10.5 BSA 98

10.6 SERGAS 100

10.7 ULSS9 102

10.8 ASLTO3 103

10.9 SCHOEN 105

10.10 NST 107

10.11 AHP 110

10.12 Osakideza 110

11. CONCLUSION 112

APPENDIX A: QUALITATIVE DATA FROM FOCUS GROUPS AND INTERVIEWS 115

A.1 Domain 2: Safety 115

A.2 Domain 3: Effectiveness of the cCBT service 116

A.2.1 Engaging in VC delivered mental health services 116

A.1.3 Appropriateness to the VC facilitated service 117

A.2.2 Adherence to the VC facilitated service 120

A.3 Domain 4: Healthcare professionals' perceived acceptability of MasterMind services in routine practice 121

A.3.1 Appropriateness of the service 121

A.3.2 Engaging in the service 123

A.3.3 Satisfaction and usability 125

A.4 Domain 5: Economic aspects 128

A.4.1 Cost savings 128

A.4.2 Economic sustainability of services in routine practice 131

A.4.3 Business case 133

A.5 Domain 6: Organisational aspects 135

A.5.1 Perspectives on implementation (professionals) 135

A.5.2 Factors hindering and fostering implementation - Leadership engagement 139

A.5.3 Factors hindering and fostering implementation - Perspective on implementation 141

A.6 Domain 7: Socio-cultural, ethical and legal aspects 144

ANNEX 1: LOCAL TRIAL PROTOCOLS

1. Introduction

1.1 Purpose of this document

This document contains the final trial report for WP7 (ccVC) videoconference for collaborative care and treatment of depression in the MasterMind project. It uses the approach based on MAST methodology. The document has the same outline that D7.4 intermediate trial report had, and includes data gathered from the pilots and data from the central database.

While the focus of WP7 and this report is ccVC, there is an inevitable overlap with cCBT findings, particularly where VC is used with patients present.

1.2 Background

The MasterMind project aims to make high quality treatment for depression more widely available for adults suffering from the illness by the use of ICT. A major cause of morbidity worldwide, depression is characterised by its high incidence, social cost and proven clinical effectiveness of ICT in its treatment.

The goal is to assess through implementation at scale (more than 5.000 patient overall) the impact of cCBT (computerised Cognitive Behavioural Therapy) and video conference for collaborative care (ccVC) and treatment for depression across 10 EU and Associated Countries.

WP7 aims to:

- deploy at scale videoconference services and networks to support treatment of depression in relevant setups, including collaborative care;
- collect the values of the indicators specified by the assessment methodology before, during, and after the trials;
- provide guidelines to identify profiles of professionals who may benefit the most from the availability of videoconferencing and collaborative care.

12 partners from around Europe participated in WP7. The inclusion period started in January 2015 and ended ultimo October 2016.

1.3 Structure of document

Chapter 2 describes the methodology, including study design, data management and analysis plan.

Chapter 3 contains information for MAST Domain 1: Health problem and characteristics of the application.

Chapter 4 contains information for MAST Domain 2 and 3: Safety and clinical effectiveness.

Chapter 5 contains information for MAST Domain 4: Patient and healthcare professional perspectives.

Chapter 6 contains information for MAST Domain 5: Economic aspects.

Chapter 7 contains information for MAST Domain 6: Organisational aspects.

Chapter 8 contains information for MAST Domain 7: Socio-cultural, ethical and legal aspects.

Chapter 9 contains information on the transferability assessment.

Chapter 10 contains the problems encountered by pilots and lessons learned.

Chapter 11 contains the conclusions.

Annex 1 contains the local trial protocols. Training materials have already been presented in D7.4 Annex 2.

1.4 Glossary

cCBT	Computerised Cognitive Behavioural Therapy
ccVC	Video Conference for Collaborative Care and treatment of depression
CSQ	Client Satisfaction Questionnaire
FTE	Full Time Equivalent
iCBT	Internet based Cognitive Behavioural Therapy
ICT	Information and Communication Technology
MAST	Model for ASsessment of Telemedicine
VC	Video Conference
SUS	System Usability Scale

2. Methodology

The methodology is described in detail in deliverable D3.1 Scientific Study Protocol. An overview of the study design and data analysis plan is provided below.

2.1 Study design

To evaluate the 15 implementation projects, a multi-level and mixed-methods assessment was undertaken using a process and pre-test-post-test study design. The evaluation assessed the viewpoints of three levels of stakeholders involved in the implementation projects: 1) patients, 2) healthcare professionals and 3) mental healthcare organisations. A mixed-methods approach was employed which provided a good understanding of what the implementation projects have achieved (quantitative results), and how or why these outcomes occurred (qualitative results). Using qualitative methods of data collection can also provide a good insight into unintended consequences, and provide lessons for improvement of both interventions and the implementation and up-scaling of future interventions in routine practice.

The evaluation was structured according to the Model for ASessment of Telemedicine (MAST) in which seven highly interrelated domains were assessed:

- Client and care profiles;
- Safety of patients;
- Clinical change in depressive symptoms;
- Implementation related costs;
- Patient and professional perspectives towards cCBT and ccVC;
- Organisational aspects; and the broader
- Social, legal and ethical issues related to employing cCBT and ccVC in routine practice.

For these seven MAST domains, the following seven objectives can be derived:

1. To identify the factors which promote or hinder the implementation of cCBT and ccVC for treating depression in routine practice.
2. To assess change of patients' depressive symptoms when treated with cCBT and ccVC in routine practice.
3. To assess the costs associated with implementation and large-scale uptake of cCBT and ccVC for treating depression in routine practice.
4. To assess patients' safety in terms of their mental health when provided with cCBT and ccVC in routine practice.
5. To assess the perceived satisfaction and perceived usability of cCBT and ccVC of:
   - Patients when treated for depression;
   - Healthcare professionals when treating patients suffering from depression;
   - Healthcare professionals when using ccVC in a collaborative care setting.
6. To identify the reach of cCBT and ccVC in routine practice through assessing general patient characteristics.

7. To identify how to implement cCBT and ccVC at a large scale in routine practice in different care contexts.

Routine practice is our laboratory, thus the measurements should not interfere with the object of our study. Therefore, the study outcomes will be based on data already available in routine care, such as information on the reduction of depressive symptoms. In addition, short self-report questionnaires are used to measure satisfaction with and usability of cCBT and ccVC, as this information is not available in routine focus group interviews with a limited group of healthcare professionals; structured interviews with representatives from the involved healthcare organisations were undertaken to gain a better understanding of the process that leads to implementation success or failure.

The primary focal points of interest are reach, clinical effect, acceptability, appropriateness, implementation costs, and sustainability of the interventions in practice.

The resulting summative evaluation provides valuable insights into the factors that influence the implementation and up-scaling of cCBT and ccVC in a variety of real political, social, economic and clinical contexts. It provides insight into the perspectives of involved stakeholders, and results in concrete recommendations for implementing and up-scaling cCBT and ccVC for depression in different mental healthcare contexts.

2.2 Data management

To ensure a proper and timely statistical analysis of the collected data, it was essential that, previously, each pilot site in the study assured the correct entry of all requested data including all relevant quality controls. That way we were able to fulfil the data analysis as described in the next section within the required time schedule and deadlines.

Each pilot site in the study ensured the quality of the data collected and its completeness, with sufficient controls to prevent the introduction of erroneous data and to totally ensure the confidentiality of patient information entered into the database. To do so, each pilot site nominated a data manager.

Each pilot site uploaded or exported the data to the central database (depending on the tool chosen) on a monthly basis. Every month, pilot sites had the opportunity to correct any mistakes introduced in the previous months. The most relevant aspects to be checked were:

- The number of valid participants included in the database.
- The quality of the information entered (completeness, no missing data or erroneous data), mainly in relation to the most relevant variables of the study.
- Detect possible adverse effects of the intervention (mainly suicide attempts or worsening of the patient's condition).

If any important mistake occurs, pilot sites communicated with the coordination team.

In addition to the quality assurance carried out by pilot sites, Arsenal.IT (which was responsible for the central database) checked if the data uploaded were in the correct format according to the codebook, i.e. all mandatory indicators entered, no incorrect symbols introduced, ranges of the indicators respected, etc.

As a third layer of quality assurance, the evaluation team led by the scientific coordinators was in charge of monitoring whether the data was of good scientific quality, e.g. the option of "missing answer" was used as little as possible, and instruments were monitored to measure and provide data as intended.

Once data capture was completed, each pilot site fully rechecked the quality of the information entered; if any errors were detected in the data entry, or data was found missing, they corrected it prior to the statistical analysis.

2.3 Analysis plan

The analysis underwent the following three steps:

- **Step 1**: Due to the strong heterogeneity amongst the participating sites in terms of cCBT solutions, recruitment procedures, and healthcare systems, the analysis of the quantitative data was of a descriptive nature. This was expected, and fits the study design: summative evaluation. Frequency tables and scoring were used to observe trends in the data. Univariate analysis was used to investigate potential associations between variables.
- **Step 2**: Through thematic content analysis, semantic units of meaning related to the study objectives were identified inductively within the qualitative data, and then coded and summarised in aggregated narrative tables.
- **Step 3**: The results from step 1 and 2 were combined and observed for trends. Quantitative data were compared with the qualitative results, and remarkable observations described. The interpretation was of a descriptive nature in order to preserve heterogeneity between levels and contexts of sites. Additionally, and where possible, explorative statistical methods were employed to investigate cross-sectional relationships between levels (patients, healthcare professionals and organisations), care settings and, if possible, specific intervention characteristics.

Presentation of results and interpretations was structured in accordance with the MAST domains. At patient level, data of all participants were included in the analyses when they were eligible and agreed to receive treatment, regardless of whether the participant ended their participation as intended. The reason for this is that information on e.g. complete discontinuation of treatment or parts of the treatment provides valuable information on the effectiveness of the implementation programme. As the focus of this study is on implementation effectiveness, no data, or parts of the data missing, is core information for the outcomes. Therefore, no imputation techniques were applied.

2.3.1 Descriptive statistics

Data cleaning for the depicted analysis included the filtering of patients that were:

a) eligible for treatment offered;
b) recruited and gave consent to the use of their data in the project; and
c) of adult age.

In general, no other exclusion criteria from data analysis have been used. For post treatment analysis, patients have been excluded for not providing pre treatment data. For the clinical effectiveness and change analyses, cases have not been filtered by the number of sessions completed; all provided cases have been used.

We used SPSS 24 for the data analysis. The data has been divided into a core and sub-data sets. The core data sets include all available data on patients, professionals and organisations in order to report maximum data on the demographics with regard to the inclusion criteria mentioned above. Additionally, for each analysis, a sub-set demographics table was reported in order to indicate the difference in these sub-datasets from the core data set.

For the clinical effectiveness measure, pre- and post treatment total numbers and percentages are depicted within pre-set categories (no symptoms, mild, moderate, severe or very severe symptoms). For clinical change, the difference scores between these categories have been calculated indicating the degree of change in the pre-set categories. “Reduction in one category” means that the patient symptoms were reduced by one severity category, e.g. from very severe to severe depressive symptoms, severe to moderate, moderate to mild, or mild to no symptoms. Accordingly, “reduction in two categories” depicts patients whose depressive symptom severity was reduced either from very severe to moderate, severe to mild or moderate to no symptoms. Under “deterioration” the number of patients is shown who experienced a higher level of depressive symptom severity after treatment than before.

Patient’s perceived satisfaction was measured with the Client Satisfaction Questionnaire (CSQ-8[1]). This version of the CSQ contains eight questions on consumers’ satisfaction, and is easily scored by summing the individual item scores to produce a range of 8 to 32, with higher scores indicating greater satisfaction. The answer options in the Likert scale linked to approval have been combined as indicating “approval”, and the disapproval options in the category “disapproval”. Item selection for the CSQ-8 has been done by expert ratings and factor analysis. Being one-dimensional, the measurement is equipped to provide a homogeneous estimate of general satisfaction with services. In numerous studies, CSQ-8 has been proven to extract patent’s perspective of the values brought by the service (and not so much the gain of treatment or outcome). Accordingly, the healthcare professional’s perceived satisfaction was assessed with the Client Satisfaction Questionnaire (CSQ-3), containing of the items 3, 7, and 8 of CSQ-8. These items are the empirically most salient items of the measurement, and are used to provide a maximum amount of efficiency in obtaining data. For the reader’s convenience, we chose to depict the percentage of approval.

Patient’s and health care professional’s perceived usability was measured with the System Usability Scale (SUS[2]) consisting of ten items to facilitate the evaluation of products such as software and applications. The questionnaire was chosen because it represents the gold standard in the field of measuring system usability, it can easily be administered, is realisable in small sample sizes, and has been proven to be a valid instrument (cite). The interpretation can be complicated. When interpreting, bear in mind the scoring of the items (positive or negative) of the SUS. To calculate the score, each participant’s[3] scores for each question are converted individually, added together and then multiplied by 2.5 to convert the original scores of 0-40 to 0-100. Although the scores are 0-100, these are not percentages and should be considered only in terms of their percentile ranking. Based on research, a SUS score equal

[1] Larsen, D.L., Attkisson, C.C., Hargreaves, W.A., and Nguyen, T.D. (1979). Assessment of client/patient satisfaction: Development of a general scale, Evaluation and Program Planning, 2, 197-207. Instrument reproduced with permission of C. Clifford Attkisson.

[2] Brooke, J.: SUS: a "quick and dirty" usability scale. In: Usability Evaluation in Industry.. London: Taylor and Francis, 1986.
Bangor, A., Kortum, P. T., & Miller, J. T. (2008). An empirical evaluation of the system usability scale. Intl. Journal of Human–Computer Interaction, 24(6), 574-594.

[3] https://www.usability.gov/how-to-and-tools/methods/system-usability-scale.html

to or above a 68 would be considered above average, and anything below 68 is below average.

The data has been presented in table format with the help of the "ctable" command in SPSS, with layout by the MasterMind partner Kronigune.

2.3.2 Cost analysis: budget impact analyses

An economic evaluation, sometimes referred to as cost-effectiveness analysis, is defined as "the comparative analysis of alternative courses of action in terms of both their costs and their consequences" (Drummond et al. 2005[4]). Therefore, an economic evaluation requires a comparison of two or more treatment alternatives, and the consideration of both costs and health outcomes in the analysis.

MasterMind does not include a control group, as this is out of the scope of the evaluative framework design of the project. This precludes a comparison between the interventions under study and other treatment alternatives, preventing the full assessment of the cost-effectiveness of such interventions. The scope of the economic analysis is thus focused on the implementation costs, the recurring costs of the implemented cCBT service, and the potential savings derived from the use of the technologies under evaluation.

The economic analysis, or budget impact analysis, is based on responses to the questionnaires preceding the semi-structured interviews with healthcare organisations, which included a series of questions regarding implementation and maintenance costs. The semi-structure interviews also collected relevant views in terms of potential savings and a potential business case for initiating and retaining the interventions according to directors or owners of the healthcare organisations participating in MasterMind.

The budget impact analyses contained the following three steps:

- Estimate costs of implementing interventions: The overall implementation cost to the healthcare organisation is estimated based on information on investment (§6.2.1) and recurring costs (§6.2.2), as well as reimbursement modalities (§6.2.3) and external information on unit costs for staff time.
- Estimate cost of providing interventions: Based on the questionnaires preceding the interviews with organisations, and information from questionnaires preceding healthcare professionals' focus groups, the (recurring) cost of providing cCBT service in practice were estimated.
- Estimate savings: Cost savings are estimated based on qualitative data. The reason for this is that sites indicated they did not have data that of sufficient quality to determine savings caused by the implemented services in comparison with existing care. Therefore, the scale of potential savings is discussed.

2.3.3 Qualitative analysis

The qualitative analysis was aligned to a constructivist understanding of the factors that facilitate or hinder implementation, by focusing on the opinions that groups of healthcare

[4] Ref. Drummond, M.F. et al., 2005. Methods for the Economic Evaluation of Health Care Programmes, Oxford University Press.

professionals and individuals in managerial positions hold towards implementing cCBT. We did not set out to answer a specific hypothesis. In that sense, the aim was to describe the participants' experiences of a certain event, which allows presenting the participants' point of view and staying close to data (Neergaard et al. 2009).

Full details on the qualitative studies can be found in deliverable D3.1 (version 1.2) Scientific study protocols, and in Vis et al. {Vis:2015kw}. Below is an overview of the various components of analysis of the qualitative data in MasterMind.

The qualitative study addressed the perspective of healthcare professionals and healthcare organisations for the following MAST domains:

2. Client Safety: reasons for stopping treatment.
4. Economic aspects: expected cost savings, business cases, and sustainability.
5. Perspectives towards cCBT and ccCV: needs of the patient and the professional.
6. Organisational aspects: leadership and factors promoting or inhibiting implementation.
7. Social, legal and ethical aspects: issues with liability, benchmarking, and public image.

The qualitative study followed a two-stepped emerging design that steered the contents of the structuring themes. Focus group discussions were conducted with healthcare professionals (both therapists and clinician referrers) to obtain collective views on the identified themes for cCBT. The interviews were aimed at obtaining the opinions of individuals representing the service organisations related to the context they are operating in.

For the data collection and analysis, a combination of inductive and deductive methods was applied. The MAST framework[5], Consolidated Framework for Implementation Research (CFIR)[6], Measurements for Determining Innovation (MIDI)[7], RE-AIM[8] and the Normalisation Process Theory (NPT)[9] were used to deductively inform the initial themes. These frameworks (MAST, CFIR, MIDI, RE-AIM) and theory (NPT) describe items and issues one should take into account when considering, planning, executing and evaluating an implementation project. Through iterative testing of the items in a pilot study, saturation of themes was achieved inductively. Purposive sampling was applied. The composition of the focus groups and interviews is listed in the tables below.

Table 1: Wave 2: focus group discussions

Site	Service discussed	Participants
Aragon	ccVC	Primary care practitioners and specialist therapists (n=4)
	Guided cCBT	Primary care practitioners, nurses, and specialist therapists (n=7)
Badalona	Guided cCBT	GP, nurse, psychologist, MD, director, psychiatrist (n=6)

[5] https://www.ncbi.nlm.nih.gov/pubmed/22617736

[6] https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-4-50

[7] https://www.tno.nl/media/6077/fleuren_et_al_midi_measurement_instrument.pdf

[8] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1508772/

[9] http://journals.sagepub.com/doi/abs/10.1177/0038038509103208

Site	Service discussed	Participants
	ccVC	Primary care practitioners and specialists (n=6)
Basque Country	Guided ccVC	Primary care practitioners (n=5)
	Guided cCBT	Primary care practitioners (n=7)
Estonia	cCBT min. guidance	Primary care practitioners (n=9)
Galicia	Guided cCBT	Primary care practitioners, nurses, therapists (n=6)
Greenland	Not available	
Piemonte	Guided cCBT	Primary care practitioners s, specialist therapists (n=11)
	ccVC	Primary care practitioners, specialist therapists (n=9)
Treviso	Guided cCBT + ccVC	Primary care practitioners, specialist therapists (n=5)
	Guided cCBT + ccVC	Primary care practitioners, specialist therapists (n=7)
Turkey	cCBT min. guidance	Specialist therapists (n=3)
Wales	Unguided cCBT	Primary care practitioners (n=5)
	ccVC	Clinicians (n=4)

Table 2: Wave 2: semi-structured interviews

Site	Service discussed	Participants
Aragon	Guided cCBT	Coordinator mental healthcare unit
	ccVC	Coordinator IT and Innovation
Badalona	Guided cCBT + ccVC	Director Innovation, research, and ICT
	Guided cCBT + ccVC	Medical officer
Basque Country	Guided cCBT	Regional Director of integration
	Guided cCBT	Regional Director of integration (different region)
Estonia	Guided cCBT	Head of GPs centre
Galicia	Not available; corrupt data file	
Greenland	Not available	
Piemonte	Guided cCBT + ccVC	Director of mental health department
	Guided cCBT + ccVC	Director of mental health unit
Treviso	Guided cCBT	Director of department of mental health
	Guided cCBT	Director of social services
Turkey	cCBT min. guidance	Project manager
Wales	ccVC	Consultant psychiatrist, clinical director
	Guided cCBT	Chief Executive Officer
	Guided cCBT	Assistant director mental health services

Table 3: Collaborative care facilitated by Videoconferencing: focus group discussions

Site	Service discussed	Participants
Aragon	ccVC	Primary care practitioners and specialist therapists (n=4)
Badalona	ccVC	Primary care practitioners and specialists (n=6)
Denmark	Guided cCBT + VC	Specialist psychologists (n=2)
	ccVC (for elderly)	Out-patient nurse; operation manager (n=2)
Germany	Guided cCBT + VC	Specialist therapists (n=8)
	Guided cCBT + VC	Specialist therapists (n=4)
The Netherlands	Blended cCBT + VC	Specialist therapists (n=8)
	Blended cCBT + VC	Specialist therapists (n=7)
Norway*	Unguided cCBT + ccVC	GP, psychologists, IT engineer (n=4)
	Unguided cCBT + ccVC	Middle-managers in psychiatry (n=4)
	Unguided cCBT + ccVC	GP (n=2)
Piemonte	ccVC	Primary care practitioners, specialist therapists (n=9)
Treviso	Guided cCBT + ccVC	Primary care practitioners, specialist therapists (n=5)
	Guided cCBT + ccVC	Primary care practitioners, specialist therapists (n=7)
Wales	ccVC	Clinicians (n=4)

* Norway conducted three focus group *interviews* but did not adhere to the field guide. However, where possible, information was extracted and used in the analyses.

Table 4: Collaborative care facilitated by Videoconferencing: semi-structured interviews

Site	Service discussed	Participants
Aragón	ccVC	Coordinator IT and Innovation
Badalona	Guided cCBT + ccVC	Director Innovation, research, and ICT
	Guided cCBT + ccVC	Medical officer
Denmark	ccVC	Senior nurse, head of department
The Netherlands	Blended cCBT + VC	Project manager / policy adviser
	Blended cCBT + VC	eHealth project leader / manager basic care
Piemonte	Guided cCBT + ccVC	Primary care practitioners s, specialist therapists (n=11)
	Guided cCBT + ccVC	Primary care practitioners, specialist therapists (n=9)

Credibility and validity were ensured through cross verification (i.e. triangulation) of the outcomes of the various methods. This took place in three ways:

- Between healthcare professionals and therapists / referrers: confirmative research of the CSQ-3 and SUS questionnaires that were administered to healthcare professionals.
- Between healthcare professionals and team leaders: confirmative research of the CSQ-3 and SUS questionnaires that were administered to healthcare professionals.

- Between healthcare professionals and healthcare organisation upper-level management: confirmative research of the focus groups with professionals and team leaders.

Preceding the focus-group discussions and semi-structured interviews, participants were asked to fill out a short questionnaire to obtain general information about the interviewees and to prepare them for the interviews.

A detailed field guide and reporting template was developed, and interviewers and focus group facilitators were trained in a two-day workshop. Please see deliverable D3.1 Generic Study Protocol for more information on the data collection procedures.

The analysis consisted of two distinct steps:

- Step 1: Thematic content analysis.
- Step 2: Thematic analysis.

2.3.3.1 Step 1: Thematic content analysis

Through thematic content analysis, semantic units of meaning related to the initially defined themes were identified within the qualitative data, and then coded and summarised in tables corresponding the MAST domains. The reports delivered by the sites were split, and categorised in accordance with the wave the sites were active in, in combination with the service evaluated (i.e. cCBT + ccVC, or ccVC only). The reports contained summary statements from the interviewer, and transcribed and translated (into English) quotes from the audio tapes supporting the summary statements.

The process of coding and categorisation of data was structured according to the following four steps:

1. The reports were read to obtain an overview of data and to identify recurrent themes.
2. The reports were reread and coded according to the themes identified in the first step.
3. All text sections that were coded similarly were categorised into general themes.
4. To ensure correct coding and categorisation, the data was reviewed for coherence and reallocated if discrepancies were found.

Coding and categorisation was done in the qualitative data analysis application ATLAS.ti.

2.3.3.2 Step 2: Thematic analysis

Analysis of combined data was of a descriptive nature in order to preserve heterogeneity between the levels and contexts of sites. For each (type of) interview, a table was constructed with the final categorisations from step 1, a summary description of the findings, and a description of the sources (site, focus group or interview, participants); this is included in the results sections below.

The descriptions of findings, data collection processes and participants were created by using narrative summaries in the form of simple descriptions of disaggregated data in tabular format[10]. These narrative summaries are included in the presentation of the results for the

[10] Dixon-Woods, Agarwal, Jones, Young, & Sutton, 2005

corresponding MAST domains, after which they are included in the interpretative step described in step 3 of the overall analyses plan.

3. Domain 1: Health problem and characteristics of the application

3.1 Introduction

Domain 1 addresses the health problem, description of involved pilot sites and interventions and general characteristics of the patient, healthcare professional, and organisations involved. It result in a profile of the average patient, average healthcare professional, and organisation providing the services. The patient profiles contain information on basic demographics (age, gender, education, employment, etc.) and health status. The profiles of the healthcare professionals include demographic information as well as professional experience in the field of mental healthcare and with the services. The organisational profiles include information in terms of age and size.

Data for this domain will be mainly of a quantitative nature, and is used to answer the following questions from the project objectives: objective #1: To identify barriers and facilitators that influences the implementation of cCBT and ccVC for treating depression in routine practice; objective #6: To assess who receives cCBT and ccVC in routine practice; and objective #7: To assess the transferability of implementation and up scaling of cCBT and ccVC in routine practice in different care contexts. The instruments used to collect the data include Routine Outcome Measurements (ROM), the treatment platforms, and online questionnaires.

The quantitative data retrieved from the trial sites will be enriched with qualitative descriptions of the epidemiological health problem in the regions and an overview of the mental health systems currently active. This will enable drawing conclusions in terms of the reach of the implemented intervention for the given healthcare context.

3.2 Results

3.2.1 Prevalence of depressive disorder

Unipolar depressive disorder is currently one of the most prevalent mental disorders worldwide, and is predicted to be the number one overall cause of disability by 2030 for citizens of higher income countries[11]. Depressive disorders can lead to reduced quality of life, impaired social and personal relationships, and disturbed professional life. They are often accompanied by other psychiatric disorders (e.g. anxiety disorders, substance abuse) and a variety of physical health problems. A depressive disorder may start early in life, and the course is often recurrent[12]. Depressive disorders are therefore associated with substantial economic and societal costs, such as cost of treatment, loss of work productivity, absenteeism, early retirement, and premature death[13].

Despite the availability of effective treatments, the number of people that actually receive treatment for depressive disorders is not optimal. Care utilisation rates for adults with

[11] World Health Organization 2008; Mathers & Loncar 2006

[12] Bijl & Ravelli 2000; Barney et al. 2006; Titov 2011)

[13] Ferrari et al. 2013; Wittchen et al. 2011; Gustavsson et al. 2011)

depression range from 35% to 45% in higher income countries[14]. Suggested barriers that contribute to these low rates include: fear of or perceived stigmatisation[15]; lack of adequately trained therapists; and the costs associated with healthcare delivery[16]. Also the often mono-diagnostic nature of interventions available might limit treatment options for patients with mixed symptoms, the relatively high comorbidity among psychological disorders, or interpersonal differences in patients[17].

Table 5 below gives an estimate of the eligible patients for each region. This is based on local and national prevalence and population of the target regions.

Table 5: Eligible patients for each region

Region	Number of eligible patients	Applicable (local) inclusion and exclusion criteria for ccVC
Denmark	36,000	Local Danish definitions of unipolar depression and adaptation reaction with diagnosis codes DF 32-32.9 and DF 43-43.9.
Wales	10,614	1. Must suffer with mild/moderate depression and/or anxiety. 2. Age 18+. 3. Willingness to be pro-active in their treatment recovery with use of technology. 4. Willingness for diagnosis / condition details to be shared with another healthcare professional / specialist. 5. Must NOT have active suicidal ideation.
Netherlands	41,192	The inclusion criteria for the patient are: • Is 18 years or older. • Has a primary diagnosis of depressive disorder. • Has access to internet, an e-mail address, and a computer. • • Has given an (electronic) informed consent.
Germany	35,068	Inclusion criteria: • Primary diagnosis of depression (mild, moderate or severe). • Indication for CBT. • Indication of short-term outpatient CBT. • Motivation for cCBT. • The patient is insured with a participating health insurance company. Exclusion Criteria: • Patient with high suicidal ideas or plans. • Patients with psychotic symptoms or addiction. • Patients with eating disorder, personality disorder etc. which should be the focus of therapy.

[14] Andrews et al. 2001; Spijker et al. 2001

[15] Hengartner:2012, VanVoorhees:2012

[16] Kazdin & Blase 2011; Wittchen et al. 2011

[17] Emmelkamp:2013, VanVoorhees:2012

Region	Number of eligible patients	Applicable (local) inclusion and exclusion criteria for ccVC
Norway	3,500	Depressed. Age 18+. Informed consent. No or stable medication.
Arágon	4,297	Patients with depressive disorders living in rural areas located far from the Mental Health Care Units.
Basque Country	39,404	Patients (with mild or moderate depression) receiving cCBT, the most complex cases will be eligible to be part of ccVC.
Galicia	101,424	Age 18+. Not suicidal. Assessed as depressed.
Badalona	25,105	Age 18+. Not suicidal. Assessed as depressed.
Treviso	8,000	Eligibility: Adult patients, with symptoms of mild, moderate or severe depression.
Piemonte	21,600	Patient's basic IT knowledge: the patient should have a PC / laptop / tablet and should know how to use it for ccVC purposes. Presence of Internet coverage at patient's location. Presence of mild to moderate depression. Consent to participate. Important: for the first two issues, the ASL TO3 MasterMind team can provide concrete and reliable support, i.e. by providing Internet connection and tutoring patient's IT activities.
Greenland	5,600	We can reach all of the inhabitants in Greenland, as AHP is the national healthcare provider and is present in all populated areas through VC at health centres.

3.2.2 Current mental healthcare settings targeting depression

The majority of persons with a mild or moderate depressive disorder receive treatment in primary care settings, mostly from GPs, by means of antidepressants and less by brief psychotherapeutic interventions. Patients suffering from more severe depressive disorders are often referred to specialised mental healthcare services where treatment consists of medication, psychotherapy or a combination of both[18]. For specialised care, there is an overall trend in Europe to replace inpatient by outpatient care in specialised mental health centres, and treat depression if appropriate in the community in primary care settings. However, the rates differ considerably between EU countries.

[18] Cuijpers et al., 2012; Cuijpers, van Straten, Andersson, & van Oppen, 2008b; Wittchen et al., 2011

We have gathered descriptions of the local mental healthcare services for depression, and how the pilots fit into this.

3.2.2.1 Denmark

A regional council of publicly elected representatives governs the mental healthcare system in RSD. Health insurance in Denmark is publicly funded. The primary healthcare sector comprises the GPs, who are the first point of contact and also serve a gatekeeper function. GPs can refer patients to a practising psychologist or psychiatrist within the primary sector, or to the mental health services in the secondary sector in the Region of Southern Denmark. It has departments and functions across the region's 12,000 km^2 in southern Denmark. Approximately 3,000 employees work in the hospital, which covers both community psychiatry and hospital psychiatry.

Departments and functions cover general psychiatry, child and adolescent psychiatry, geronto-psychiatry, forensic psychiatry, psychiatric emergency rooms, psychiatric information centres, and centres for survivors of trauma and torture.

In the Danish MasterMind pilot, VC was used to diagnose, monitor, and treat unipolar depression in older adults (70+ years). VC includes the use of video as a communication tool in an integrated intersectorial collaboration between patients, psychiatrists, and nurses. Video conference was applied as an active communication tool in the course of treatment between the following groups / situations:

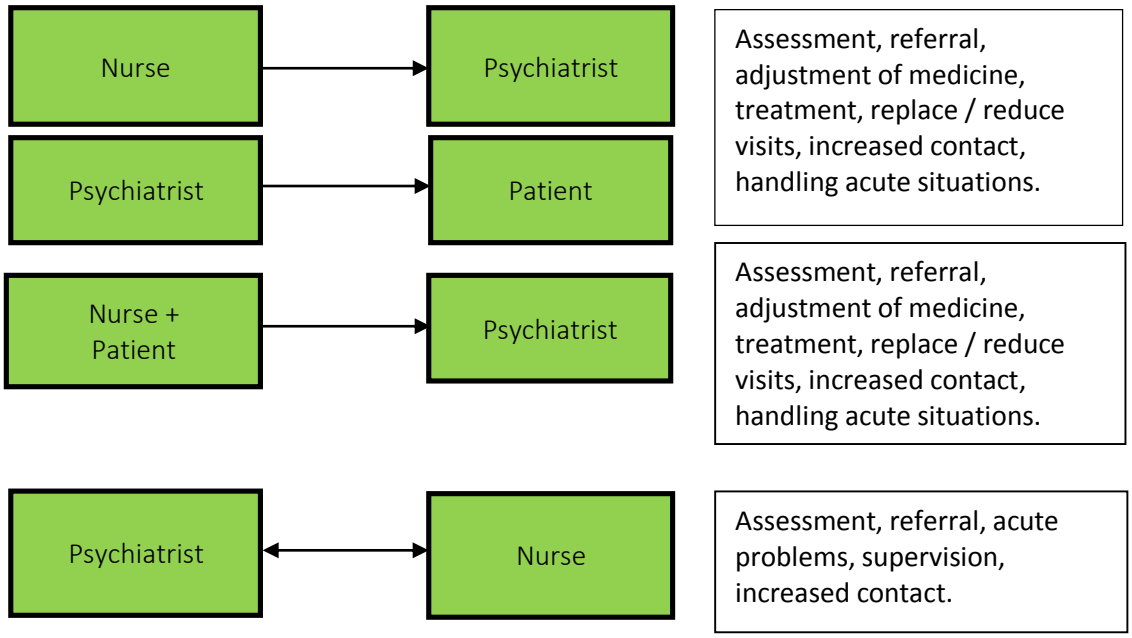


Figure 1: Denmark: ccVC treatment process

The individual course of treatment and the use of video conference were planned in close collaboration between the patient and the psychiatrist / nurse; it presupposed that appointments and treatments using video conference were agreed in advance to the extent possible.

Patients were included from two groups.

- Intervention group 1: Patients referred to gerontopsychiatric team (GPT) by hospital or GP for the purpose of referral and assessment. Patients were included consecutively after referral to GPT.
- Intervention group 2: All patients in conventional treatment wishing to participate in the intervention were offered inclusion. Here, conventional treatment means the courses of treatment taking place without the use of video conference, but in close collaboration between nurses from GPT, psychiatrists, and GPs.

Video conference was applied to the same extent in both groups. Patients were included from GPT in Fredericia and Esbjerg, Region of Southern Denmark, respectively.

3.2.2.2 Wales

Powys covers ¼ landmass of Wales, but only has 4.5% of the population (132,000 people approximately) making it the most sparsely populated region in Wales.

PtHB is part of the National Health Service within the United Kingdom.

Travel between some of the different Health Board sites can take three hours plus.

We piloted VC with the Crisis Team in the north of Powys which supports approximately 65,000 people. The patient sat with a healthcare professional from the Crisis Team at their local Health Board site, and they used VC with the consultant psychiatrist based at another Health Board site.

Figure 2 shows how the VC system works.

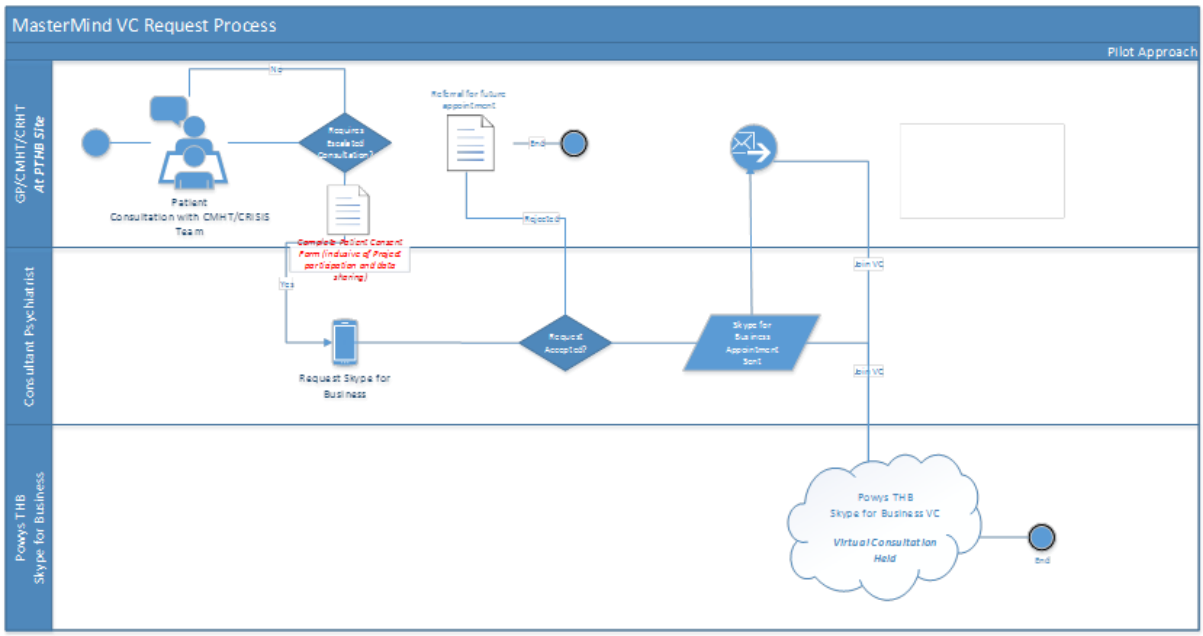


Figure 2: Powys: VC system process

By applying this model we hoped to achieve:

- Reduced waiting times for patients needing to see a consultant psychiatrist.
- Reduced travel time for healthcare professionals.

- Reduced travel costs for healthcare professionals.
- Reduced 'Dead Time' (time spent travelling so therefore not working) for healthcare professionals.
- Easier access to services for patients in Powys.
- Provision of a more patient centred care at the home where possible.

3.2.2.3 Netherlands

Within the Netherlands, the mental healthcare system is organised at three levels.

1) The first level is the GP, who functions as a gatekeeper for all assignments: every patient first consults his GP. The GP can prescribe medication and/or refer the patient to a nurse practitioner trained in the field of mental healthcare (POH GGZ). All GPs have the possibility to contract an in-house nurse practitioner. They deliver triage, and short term face-to-face, online or blended treatment directed to self-management and empowerment of the patient.
2) The second level is called basic mental healthcare (bGGZ): patients requiring mental healthcare for relatively mild to moderate symptomatology (single diagnosis); patients with sufficiently treated chronic disorders existing for longer than two years, and who are at low risk, are treated in the basic mental healthcare. Patients are treated by psychologists and specialised nurses with protocolled treatment such as CBT (Cognitive Behavioural Therapy), EMDR (Eye Movement Desensitisation and Reprocessing), IPT (Interpersonal Psycho Therapy), PST (Problem Solving Treatment) or relapse prevention programmes. Treatment is delivered face-to-face, or in a blended form. Psychiatrists and specialised nurses offer medication monitoring and treatment. The treatment protocols in basic mental healthcare are offered in time limited formats. Depending on the severity of the symptoms, four levels can be distinguished: short (maximum 300 minutes), middle (450 minutes), intensive (750 minutes) or chronic (750 minutes each year). Basic healthcare is offered by mental healthcare organisations and by independent therapists.
3) The third level is the specialised mental healthcare (sGGZ): in the case of more severe / complex psychopathology, patients are referred to specialised mental healthcare (outpatient clinics) for more intensive treatment. Treatment is delivered by multidisciplinary teams consisting of clinical psychologists, psychiatrists, specialised therapists such as occupational therapists or motoric therapists, and specialised mental health nurses. Most treatment is offered face-to-face or blended. For severe mentally ill patients (SMI), who are (semi-) independently living with guidance from mental healthcare, video conferencing is starting to find its way into regular treatment programmes. When the patient is in crisis and psychopathology is so severe that the patient is in danger of self-neglect and/or harming himself/others (due to e.g. severe depression, suicidal tendency or psychosis), the patient can be referred from an outpatient clinic setting to an inpatient clinic.

As described in our local protocol, we explored the possibility of integrating VC in the treatment of elderly (this was carried out at our outpatient clinic for elderly), and VC as part of cCBT treatment for adult patients in sGGZ (this was carried out at our outpatient clinic for adult depression), with the goal of further lowering the thresholds for treatment for people who have difficulties reaching the clinic.

Not all people with a depression seek and get help in bGGZ and SGGZ. Until 2013, there were only two levels of care for mental health problems: primary care and secondary care. It was found that only half to two thirds of the persons with a depression ask for professional help[19]. When people first visit their GP, after diagnosis, the majority of people with a depression (in 2008: 85%) stay in care at the general practice[20]. Research from the Netherlands also showed that in 2007-2009, 41% of the people with a depression visited their GP because of their symptoms[21]. About 5% of patients who are referred by the GP are referred to mental healthcare within primary care (private practices), and 10% are referred to secondary care[22]. For MasterMind, we recruit patients from this 15% who are referred. Probably in the last few years this referral rate is somewhat lower, as more general practices are able to deliver mental health interventions by their POH- GGZ.

This would mean that of the total numbers of depressed patients in the recruitment area of Mastermind in the Netherlands, it is estimated that 40-50%% go to their GP (0,5 x 28.654=14.327). Of them, 15% may be referred to basic or specialised mental healthcare (2.149). In all areas, the sites that participate in Mastermind are not the only providers of mental healthcare in that region. For example, at the site of GGZ inGeest in Amstelveen, there are only about 60-80 patients referred for depression treatment per year.

The patient flow within the mental healthcare system is shown in Figure 3.

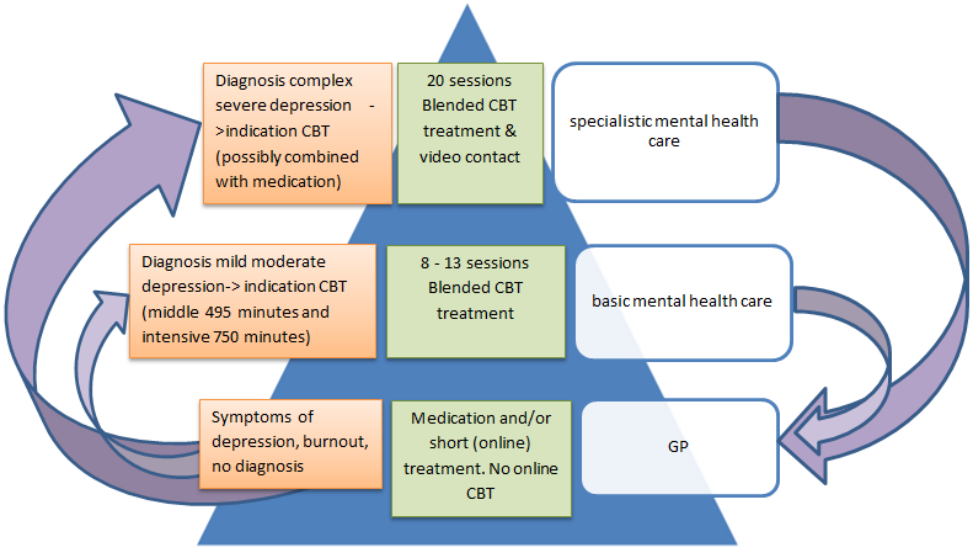


Figure 3: Patient flow in mental healthcare system in the Netherlands

[19] Cuijpers, 2011; Wieren, 2010
[20] Achterberg, 2010
[21] Nemesis-2, De Graaf et al, 2012
[22] Verhaak, 2011b

3.2.2.4 Aragon, Spain

Aragón is a region located in the north-east of Spain; it has a population of 1.3 million inhabitants, half of them living in the capital city (Zaragoza). Some of the areas in the region (especially those located far from the big towns) have a very dispersed and old population.

The SALUD (Servicio Aragonés de Salud – Aragón Healthcare Service) is the public provider of healthcare services for the whole region, and the only provider of healthcare services for the vast majority of the population. It includes primary, specialised, socio-health and mental healthcare. The SALUD is divided into eight sectors, which are in charge of the provision of healthcare services to the population living in them. Each sector has at least a general hospital, which includes the in-patient resources and specialised care consultations. Primary care is organised around healthcare centres. There are also local healthcare offices located in the smallest villages, which are visited once a week by primary care teams. There are 12 public hospitals, 118 healthcare centres and 847 healthcare offices. There is a shared EHR for all the healthcare professionals in the region, so the clinicians from both primary and specialised care can share the relevant information related to patients.

Barbastro Healthcare area is one of the eight sectors that make up the SALUD. There is a general hospital in Barbastro that hosts the specialised care services for the sector. There is also a mental healthcare unit at Monzón, which is one of the biggest towns in the area. Many patients from the Pyrenees, and also from other remote areas, must travel to Barbastro Hospital to attend specialists' consultations.

The ccVC pilot took place in the Lafortunada Healthcare Area, which is one of the areas included in the Barbastro healthcare sector. Its healthcare centre is located in Lafortunada, a small town in the Pyrenees located 74 kms from the hospital. This area includes 1.360 inhabitants, living in five villages and 18 hamlets (smaller administrative population units). Due to the lack of a good communications infrastructure and to the limited public transport network in this area, the attendance at specialist consultations becomes quite troublesome for its inhabitants. The primary care teams have very close relationships with the people living in the area.

The Lafortunada Healthcare Centre is the first site included in the Mastermind ccVC pilot. Besides the generic challenges (empowering the GPs in the treatment of mental health pathologies, to promote a closer relation between GPs and specialists, to reduce the number of consultations addressed to the Mental Healthcare Unit, and to improve the quality of the service provided), there are two goals that applied to this specific context: to reduce overall travel, and to improve accessibility to healthcare services (promotion of equity between rural and urban areas).

3.2.2.5 Basque Country, Spain

The Basque Country implemented collaborative care between GP and specialist. GPs and specialists organised regular videoconferences to analyse and discuss complex case management, a non face-to-face clinical session, within the group of patients receiving cCBT. Complex patients present the following characteristics:

- Existence of relevant psychiatric or medical relevant comorbidity. This will be identified in the first interview with the healthcare professional assessing his/her inclusion in the cCBT programme.

- Observed worsening during treatment, in the results of the tools used to measure the severity of his/her depression. (PHQ9: 20 or more, BDI-21: 30 or more).
- Appearance of suicide risk during cCBT. This will be assessed with item 9 of PHQ9 and BDi-21.
- Increase in the demand for care.

The technological solution for ccVC was Lync Server, an internal communication system that was already in use for many other purposes within the Basque Public Health Service, such as sending messages and administering corporate inbox. It includes instant messaging (IM), voice over IP (VoIP) and web conferencing both within the organisation and externally.

This system can be access by a PC inside Osakidetza's network. Osakidetza's network is made up of the PCs connected to an internal network.

27 healthcare professionals were involved in ccVC in the Basque Country:

- 23 GPs: The main persons responsible for the management of the patient, they use ccVC when a complex case is identified within the pool of patients treated with cCBT. They then use ccVC when advice is needed to manage these patients. They agree a schedule to follow-up these cases via ccVC. Additional teleconferences can be set up outside the schedule whenever the GP finds it necessary.
- Four psychiatrists and psychologists: They are consulted by GPs when a complex case is identified. They provide advice and follow-up. They act reactively to the demand for advice made by GPs.

Eight healthcare organisations were involved in ccVC in the Basque Country:

- Three mental health organisations:
  - MHO Araba.
  - MHO Gipuzkoa.
  - MHO Bizkaia.
- Five integrated care organisations:
  - ICO Donostialdea.
  - ICO Araba
  - ICO Ezkerraldea-Enkarterri-Cruces
  - ICO Barrualde Galdakao
  - ICO Uribe

3.2.2.6 Galicia, Spain

SERGAS (Galician Health Service) is the public healthcare provider in the region; 95% of 2.700.000 Galician population is covered by the public primary and specialised care network in Galicia.

The main resources consist of seven hospitals trusts with tertiary care services, and rural hospitals with secondary care services. Another 460 primary centres complete the network of healthcare facilities in the Region. 38.000 professionals (including 11.000 nurses and 9.000 physicians, both GPs and secondary care specialists) work at SERGAS, which is considered the biggest organisation in Galicia.

An average of 30 M€ funding has been incorporated during the last 10 years to provide new models, based in the introduction of technologies and tools to support organisational changes: electronic health record system, named IANUS; e-prescription or digital imaging provide successful experiences that have provided and are currently providing benefits for quality and sustainability of health services.

The healthcare ICT network connects all primary care and secondary care centres. This allows connection to the same electronic health record system to ALL healthcare professionals, sharing online the same information. Complete access to primary care information is available online from any hospital, as is also hospital information from any care centre.

Telehealth services are mainly implemented by an off-line model, where GPs request diagnosis and treatment consultations with clinicians at hospitals. More than 10.000 teleconsultations are performed in several areas.

The use of videoconferencing for various purposes in the healthcare sector is also in use, based on the Health Data Network infrastructure. Videoconference system has been available since 2010 for communication among professionals, connecting GP, secondary and tertiary centres.

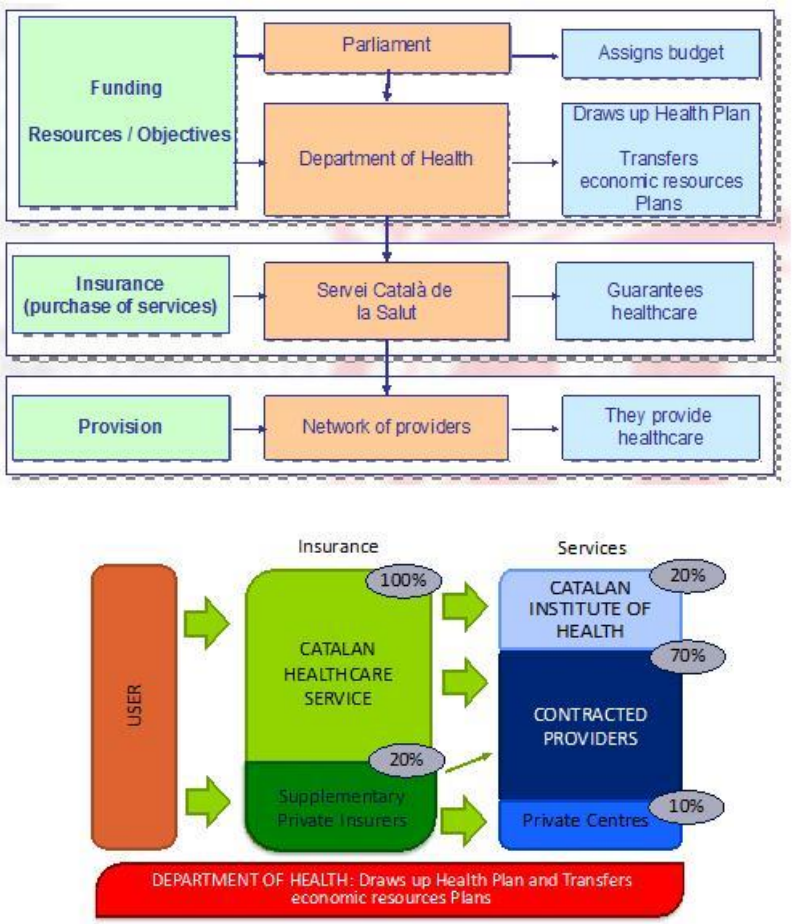
The Region is currently focusing on establishing integration to social care systems, e.g. at physically and mentally handicapped residences, and to psychiatric institutions, thus expanding the electronic communication flow among all relevant parties.

In the Mastermind context, at the beginning GPs from primary care and psychiatrists from area of Coruña were included, because we were implementing an integrated depression care process. In this process, a specialist consultant is created, whose objectives are to improve the coordination between primary care and secondary care, and standardise care protocols for depressives disorders. SERGAS uses videoconference as collaborative care between specialist and GP to facilitate interaction and to give support to the GP in the treatment of depressive patients.

3.2.2.7 Catalonia, Spain

Catalonia is one of the 17 Autonomous Communities, with a population of roughly 7 million inhabitants. This region has full competences in health services, as part of the decentralised Spanish health system. The Catalan government (Generalitat de Catalunya) has developed its own organisational model based on the historical evolution of the Catalan health system. The Department of Health (DSGC) is the ultimate official authority for the definition, planning and development of healthcare services in Catalonia. Servei Català de la Salut (CATSALUT) acts as a purchaser of services and guarantees quality control, while a network of public and private organisations provides the healthcare services.

The Catalan Health system, as defined by Health Plan for Catalonia 2011-2015, comprises 451 primary care centres, 831 local healthcare centres, 96 acute care hospitals, 96 social health centres, 158 mental health centres (for adults and children/teenagers), and 42 centres for inpatient mental health care. The system is organised within seven health regions divided into 56 health sectors and 369 basic health areas.



Source: Martinez (2013) and Contel (2014)

Figure 4: The Catalan Health system

The Health Plan for Catalonia 2011-2015 mentions that 30% of these resources are directly owned by the government (through the ICS, National Health Institute, the biggest provider in Catalonia), while foundations, mutuals and other private non-profit authorities own the remaining 70%. This situation has facilitated the separation of functions (purchasing v. providing) of the Catalan health care model, where CATSALUT acts as a purchaser of health care services based on harmonised agreements and tenders from private and public providers

Within this context, the Department of Health of Catalonia launched a strategic plan "Health Plan for Catalonia 2011-2015" structured into three transformation pillars, nine lines of action, and 32 strategic projects, which constituted the roadmap for the health system until 2015. Health Plan for Catalonia 2011-2015 envisaged three very significant challenges: (1) the continuously ageing population (the number of people over 65 years of age will increase by over 200,000 during the next 10 years); (2) worsening habits and lifestyles (one in every two Catalans is overweight); and (3) the increasing incidence of chronic diseases (in 2010, 34% of Catalans stated that they suffered from at least one chronic disorder).

Transformation pillar II "Transformation of the healthcare model: better quality, accessibility and safety of healthcare interventions" puts the emphasis on pushing integrated care within the Catalan Health system using line 2 "More oriented system to chronic patients" that contains six major principles: (1) A population-based approach focused on all people, from the healthy patient with or without risk factors, to those that have a disease at any stage of

progression; (2) A citizens' role in being responsible for their own health; (3) The strengthening of professional initiative; (4) A comprehensive healthcare model; (5) The use of new technologies and (6) an inter-ministerial collaboration. This strategy is carried out in six major projects:

- Implementation of integrated clinical processes for 10 diseases.
- Fostering of health protection and promotion programmes and disease prevention.
- Fostering of self-responsibility of patients and caregivers with regard to their own health and the promotion of self-healing.
- Development of healthcare alternatives within the framework of a comprehensive system.
- Deployment of regional programmes for complex chronic patient care.
- Implementation of programmes for the rational use of medicines.

All these major projects reflect the need to define interventions and organise the services based on population stratification and a proactive, integrated approach. The Catalan Ministry of Health and the Ministry of Social Welfare and Family have created the Chronicity Prevention and Care Programme (PPAC), which should enable health and social sectors to work together in managing chronicity. Chronicity is an evolutionary process linked to the natural course of diseases, with certain initial stages that may be asymptomatic and a progression that can bring about acute care episodes, complications, and co-morbidity until the end of the person's life.

3.2.2.8 Treviso, Italy

In most cases, a patient suffering from depressive disorders usually refers to the GP, who builds an initial assessment and decides, based on the severity of the disease, if the patient can be manage by himself, or sends the patient directly to the mental health department for a focused intervention. The clinicians (GPs and specialists) do not have any kind of contact or sharing of clinical information, and the patient goes independently to the mental health centre with a prescription for a specialist visits. The patient can also refer autonomously to the mental health district, where he/she receives the specialist evaluation that, depending on the clinical situation, can assign management of the patient to the mental health centre or to the GP.

In this context, Local Health Authority n. 9, Treviso, in the Veneto Region, has implemented a new model of integrated care with the aim to improve the collaborative care between primary and secondary care, and to give patients the necessary support in the management of their disease. The new model includes two services: the videoconference tool with the possibility to share the information of the patient, and the inclusion of cCBT treatment in routine care, with which the patients can monitor their own mood and follow the everyday activities suggested, helping them to manage their own depression and contribute to recover it.

The videoconference tool is used by the GP to ask for support from the specialists, sharing the symptoms and the situation of his patients, and to define better follow up together. To permit the real integration of care, the Territorial Information System has been integrated with primary care, giving GPs the possibility to see the past clinical history of the patient at

any time, and to have the necessary background to decide on better follow up, providing a new integrated relationship between primary and secondary care.

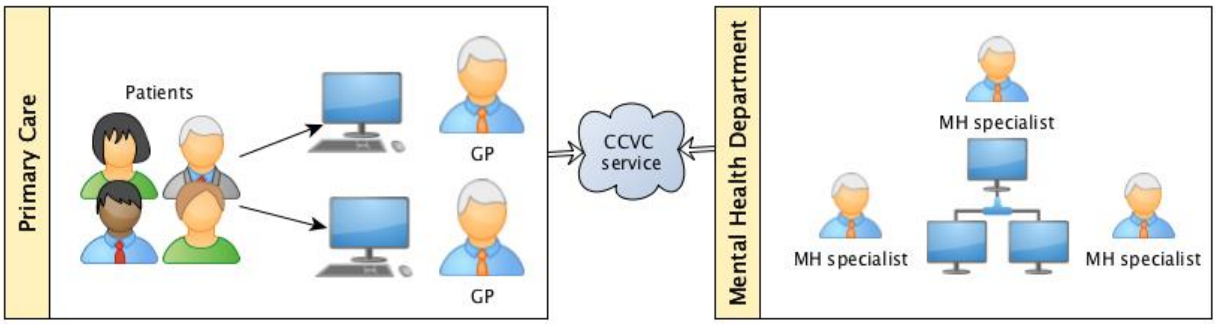


Figure 5: Treviso: CCVC service

Through the videoconference service, LHA N.9 provides to GPs the possibility for continuous education in the identification of this kind of problem, and a continuous self-upgrade of competence to manage these kinds of patients, through discussion and sharing of different cases with specialists. The purpose of the regular GPs training is to give GPs the certainty to choose, from the first contact, the most suitable clinical pathway.

The follow up of these patients lasts at most three months, after which the patient is followed, related to the pathway decided.

The new care model is applied to about 30 professional and a target of 200 patients followed for three months or more, to monitor the impact of their improved management and care, in term of organisational efficiency and clinical integration between different settings.

3.2.2.9 Piedmont, Italy

In Italy, the National Health System has a public nature, and provides health services through Local Health Authorities (called “Aziende Sanitarie Locali”, or ASL), or hospitals. In Piedmont, a northwest region of Italy (its area population is nearly 4.500.000), there are 13 ASL.

ASL TO3, partner of the MasterMind project, is located in Piedmont; ASL TO3 population area is about 600.000.

Overall, the psychiatric services of ASL TO3 treat about 9.000 cases per year. They receive about 3.000 new cases every year, with an estimated proportion of depressive disorders of around 15-20%.

Over the years, a specific pathway has been developed for the assessment and treatment of people suffering from depression. This pathway encompasses an assessment stage of the patients in the Mental Health Outpatient Services (11 distributed in the territory of the ASL TO3); when appropriate, this is followed by referral to a therapeutic treatment of low, medium or high intensity depending on the clinical needs of the patients. Patients can be treated in three hospitals (with 10 beds each for psychiatric emergencies, and an average length of stay of around 12 days), or in two private accredited facilities (with 140 beds in total, and an average length of stay of around 36 days).

In the last few years, the collaboration of the GPs has increased the capacity for early detection of those who are suffering (or at risk of suffering) from depression. However, it is

currently difficult to provide adequate therapeutic treatment to such a large number of patients with traditional approaches (e.g. face-to-face psychotherapy), especially as the number of patients with depressive disorders is expected to increase significantly in the next decades[23]. Thus, the introduction in the territory of an increased use of the videoconference system for clinical monitoring (as implied by the MasterMind pilot) allows reaching and monitoring a proportion of patients with mild to moderate depression. More precisely, in all the Mental Health Outpatient Services, hardware and software devices have been dedicated to the use of ccVC (a personal computer, Internet connection, headset and webcam, and the software Easymeeting©). In addition, a number of tablets have been acquired and distributed to the project team leaders and GPs involved, allowing them all to be connected to each other when needed.

All of the patients undergoing ccVC are also being treated with the cCBT tool iFightDepression. A typical patient's "flow" in our unit during the MasterMind project is shown in Figure 6.

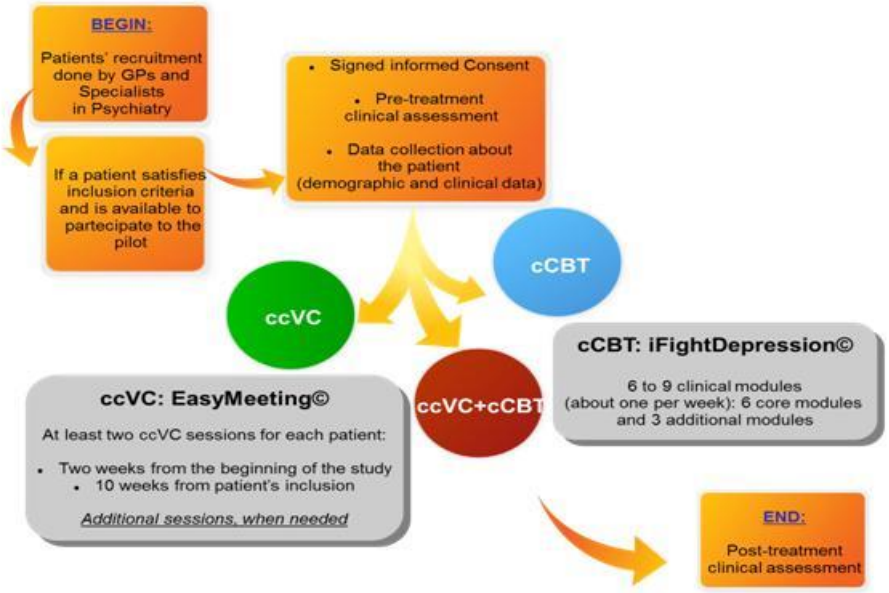


Figure 6: Piedmont: Treatment flow

3.2.2.10 Germany

In Germany, being insured with a health insurer is mandatory. The German system is a dual system where health insurance is provided by a) competing, not-for-profit, non-governmental health insurance funds called "sickness funds" in the statutory health insurance scheme (SHI), or b) voluntary substitutive private health insurance (PHI).

Within the German healthcare system, outpatient and ambulatory care fulfils a central role: except for emergencies, GPs and outpatient specialists operating in private practices are the first contact point for a patient. Regional associations, which every GP or specialist has to be a member of, negotiate individual contracts with the "sickness funds" and coordinate healthcare requirements. GPs and outpatient specialists are then reimbursed on a fee-for-

[23] World Health Organisation, 2001

service basis with a uniform fee schedule negotiated individually between the fund and the physician.

Inpatient treatment in clinics represents a third of the financial burden of the German healthcare system. Inpatient treatment in Germany can be divided into clinical inpatient treatment and rehabilitation. Inpatient is always subordinate to outpatient treatment, and outpatient physicians have to refer the patient to inpatient treatment. In 2013, there were 1.996 acute clinics with 500.600 beds. There is a reduction in acute beds in Germany, and a shift to more specialised outpatient treatment. Clinics operate within the federal states in Germany (mostly university hospitals), while municipalities play a role in public health activities and own about half of hospital beds. Private practices play an increasing role in the German healthcare system and today hold a majority of acute clinics. The German law for clinic funding regulates a dualistic financing system of acute care: investment costs are funded by means of taxation, while operating costs are funded by health insurance companies.

Within the healthcare system, the German MasterMind trial was located within both in- and out-patient settings, cooperating with both SHIs and PHIs.

The three interventions offered by the Schoen clinic, a private acute clinic for psychosomatics, were planned to cover different aspects within patient care.

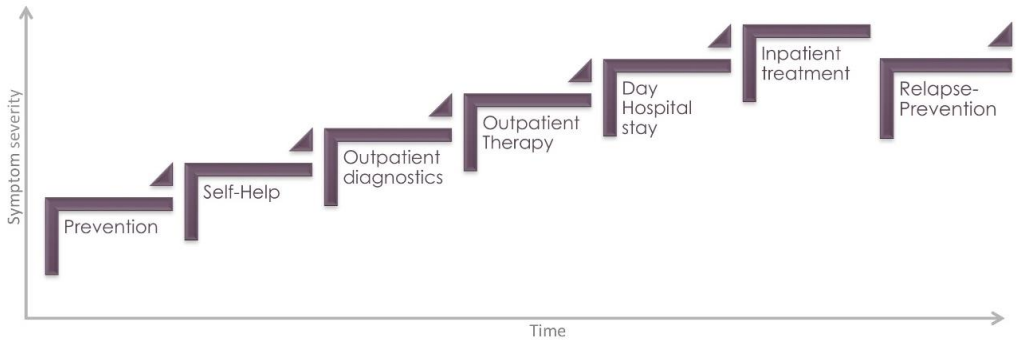


Figure 7: Germany: Stepped care model of healthcare in MasterMind trial

Within the stepped care approach to patient care, the German MasterMind trial offers 1) guided and unguided prevention and self-help intervention through Get.On Mood Enhancer (ProMind) as a first step, then 2) outpatient diagnostics and the option for a subsequent internet- and video-based outpatient treatment "Depression Online" if patients experiencing an increase in symptom severity can find easy access to acute treatment in a (co-operating) day clinic or acute hospital; and 3) the internet- and video-based Relapse Prevention programme after inpatient treatment. Patients can enter at any stage.

Within the healthcare system, the German MasterMind offer is funded by one major SHI and one PHI. The infrastructure is located in an acute inpatient setting, while the service can be considered as outpatient treatment. This intersection allows for the provision of holistic care.

3.2.2.11 Norway

The Norwegian MasterMind system covers 34.000 inhabitants, 11 municipalities and 42 GSs serving in a list care system (please see D3.1 study protocol for details). The specialist care system is a district mental health centre and a university hospital.

The guiding principles in the Norwegian MasterMind service are that the system should be:

- Integrated into the normal healthcare system, not an “add-on”.
- Based on a stepped care approach from self-help with GP involvement to increasing involvement of specialised healthcare workers.
- Highly flexible to allow the GPs to work within their normal routines.
- A learning healthcare system that promotes cooperation across administrative borders.
- Economically beneficial for GPs.
- Efficient to focus the specialist healthcare system on patients that cannot receive sufficient treatment in the primary healthcare system.
- A tool to reduce waiting lists by better and faster visits by patients to the right level of care.
- A system to relieve constant lack of specialists in the remote areas of Northern-Norway.

NST tried to achieve these goals by integrating internet based cognitive behavioural therapy (iCBT) and ccVC into the normal patient care system.

Figure 8 below shows the complexity of patient flows through the system. One of many patient flows could be as follows. A patient tries self-help iCBT at home. The patient realises that she or he needs more help, and contacts the GP. The patient and GP together try assisted self-help where the GP motivates the patient to work with the iCBT. This is not enough, and the GP increases the assistance by offering more motivational consultations, typically a consultation between each module in the iCBT programme. If that does not work, the GP may offer therapeutic consultations or ask for ccVC from a psychologist in the specialist healthcare. The GP and patient in the GP's office participate together with the psychologist in therapeutic consultations, typically six consultations, but this will be decided jointly between the three parties.

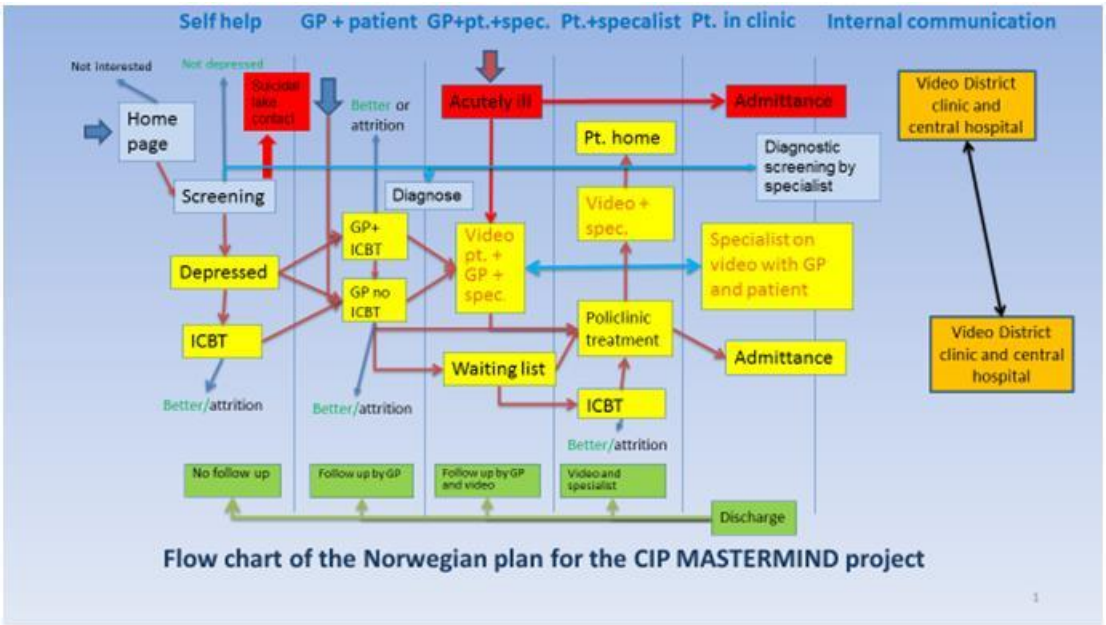


Figure 8: Patient flow in the Norwegian MasterMind project

If this does not work, specialist healthcare takes over, and the patient is cared for in the policlinic. After an initial consultation at the policlinic where the patient meets the therapist face-to-face, the patient is offered ccVC with or without cCBT or ICBT.

The patient and GP can also ask for assistance on therapeutic or diagnostic problems using ccVC with psychologists or psychiatrists. If the patient is very ill, ccVC can be used for the GP and patient to consult specialist healthcare personnel to form a plan for the optimal acute treatment. Finally, district psychiatric wards will be able to consult the university clinics on individual patients using video links. Should GPs choose not to use the system, they can refer patients in the usual way, risking longer waiting lists. ccVC can also be used at the policlinic to treat patients from the waiting list. GPs in Norway are paid to conduct structured therapeutic consultations and take part in joint consultations with other healthcare personnel as long as each session does last longer than approximately 35 minutes.

3.2.2.12 Greenland

The strategic reasons for implementing videoconferencing technologies is so that the Agency of Health and Prevention (AHP) can meet its objective of providing the same services for the entire population, wherever in Greenland they live. It can be difficult to live up to, but rapid technological development can help AHP to provide technical solutions that offer new opportunities to link the healthcare system together, so that AHP can offer specialised help where it is most needed.

AHP aims to improve the offer for psychiatric patients and staff in psychiatry outside Nuuk through improving opportunities for interviews, assessments and monitoring of treatment and long term training through the use of telehealth in the communication between the psychiatric unit of Nuuk and coastal hospitals, health centres, nursing stations and other partners.

AHP is part of the Department of Health, which is Greenland's highest authority in health. AHP is directed towards health promotion and prevention, and is implementing several projects in both health and dental care.

AHP MasterMind is based in Nuuk, at Queen Ingrid Hospital (DIH), which is a modern national hospital with a high professional level and a good working environment. The hospital has 182 beds, a patient hotel, and surgery facilities.

In every district of Greenland, there is also a major treatment facility, either in the form of a health centre or a hospital. The smaller settlements are visited by health staff from the larger clinics several times a year.

The treatment centres, both in Nuuk and in the regions, thus encompass everything from ward to healthcare and psychiatry, and general medical consultation. If treatment is not possible in Greenland, the patients are transferred to a partner in Denmark or Iceland.

The local health centres have different systems / possibilities:

- Bigger health centres have videoconference equipment like the main hospital in Nuuk. They have a broadband connection. There is usually a videoconference room where the patient can be.

- Smaller health centres have ordinary PC equipment which have a broadband connection. There the patient will be in an office that is suitable.
- The smallest health centres have telemedicine equipment, which is an advanced PC system that can also be used for medical examinations (Pipaluk). The system has a satellite connection. The equipment is located in a room that is used for physical examination.

3.2.3 Interventions implemented in WP7 in MasterMind

The aim of WP7 in MasterMind was to assess the impact of video conference services and networks applied in relevant setups, including collaborative care and direct treatment, in the treatment of depression while providing patients with high quality treatment in their immediate environment. The project aimed to develop clinical pathways for the use of video conference in treatment for depression based on the relevant applications and setups across the trial sites. Many European countries have already invested in VC equipment and infrastructure. In the project, this investment was to be further capitalised on through greater use.

By use of video conference services and networks, the course of treatment was carried out as a cooperation between different healthcare providers. By implementing video conference services and networks in the treatment of depression, including collaborative care, this intervention aimed to ensure the appropriate balance between specialisation and proximity in order to provide the best care and treatment possible. Further, the use of video conference in this context was to result in a more efficient utilisation of specialist resources, and serve as a learning experience, e.g. for the GP, who can benefit from experiencing how the specialist deals with the patient.

Video conference services and networks were used to treat patients and improve collaborative care between healthcare professionals, as well as to facilitate sharing of competence between healthcare workers.

With video conference services and networks, we refer to the technical infrastructure, security measures, and the procedures, guidelines, and competences needed to operate and use the videoconferencing technology to the benefit of treating depressive disorders.

The pilots were classified into the following groups, depending on their focus. Note that there is some overlap of pilot sites between groups, as some pilots implemented several different solutions.

- Group A is treatment for depression facilitated by video conference between specialists and/or GPs / other healthcare professionals without the patient. The purpose of these meetings can be that the specialist guides other healthcare professionals in the use of cCBT, or that they together assess a patient's medication, plan treatment, etc.
- Group B is treatment for depression facilitated by video conference between specialist and GP with the patient present. The purpose of the meeting is to provide specialist support directly at the moment of treatment.
- Group C is follow-up or outpatient care of the patient at home. In this case, the healthcare worker communicates with the patient, who is at home. The healthcare

worker can be either a GP, specialist, or other healthcare professional depending on the location. This can be as a follow-up to cCBT treatment, face-to-face treatment, etc.

- Group D is acute care. This is a video conference from the acute ward to a specialist. Together with the patient, they make a plan for the patient, e.g. decide if admission is necessary. By reducing unnecessary admissions, we save both resources in the healthcare system, and avoid an extra burden on the patient.

Table 6 shows to which group(s) the different pilots belong:

Table 6: Pilot grouping in WP7

Group	Pilots
A	NST, RSD, AHP, ULSS9, PHB, ASL TO3, OSAKIDETZA, SERGAS, SALUD, BSA
B	NST, BSA, AHP, PHB, ASL TO3, SERGAS
C	NST, SCHOEN, GiG, ASL TO3, SALUD, RSD, BSA
D	NST, ASL TO3

A short service description for each pilot follows.

NST

NST has worked to integrate internet based cognitive behavioural therapy (iCBT) and videoconferencing as part of a holistic, stepped care integrated system for diagnosis and treatment of mental and psychosocial problems in the municipalities in South Troms in Northern Norway. NST have used VC to treat patients at home. A team consisting of a psychologist and psychiatrist have had video meetings with GP offices to achieve collaborative care.

RSD

The intervention has consisted of an enhanced collaboration between psychiatric nurses and psychiatrists in Esbjerg and Frederica, and in some cases between psychiatrist and general practice / municipalities. Psychiatric nurses have conducted cognitive therapy, psycho-education, and assessment of symptoms. The services were selected from a model based on clinical guidelines for the treatment of depression. Patients were offered an account on a standard internet chat service (Jabber) so that they can communicate with the psychiatric nurse.

BSA

The VC system was used at the Primary Care Centres managed by BSA to organise communication between GPs and specialists (psychiatrists) at the hospital. At BSA, the GPs dealt with patients impaired by mild and moderate depression, while the specialists were in charge of treating patients with severe depression.

GPs were able to schedule visits with the patient and with the psychiatrist in a diary where both GP and specialist must be available. The idea is that the specialist deals with the situation while the GP is learning. The patient feels safer without having to move to the hospital, which would imply being treated by other healthcare professionals and starting

again to explain the personal history and symptoms (a situation not particularly helpful in depression).

AHP

The Agency of Health and Prevention (AHP) has used Microsoft Lync (Skype for business) based video consultations. The intervention consists of an enhanced collaboration through VC within the different AHP health centres and health workers in Greenland, thereby enhancing inter-professional communications; access to different health professionals enables collaborative care.

The location of the treatment for the patient is at a local healthcare facility; a local psychiatric nurse / assistant organises the use of VC for the patient. The treatment is CBT for depression. GPs / psychiatrists are consulted about the use of pharmacotherapy for a combined treatment (CBT and pharmacotherapy) when necessary. A structured management plan has been developed to use the treatment.

CBT for depression has been provided by a psychologist, who also assesses symptoms for depression. Patient follow-ups have been scheduled after treatment. Another collaborative part refers to the supervision of the psychologist by an experienced CBT psychologist through VC.

ULSS N.9

ULSS N.9 has worked to improve the VC system to create a collaborative care service between GPs and specialists, focused on the support of communication and information sharing to improve the quality of care. ULSS N.9 has also used VC to discuss and agree patient's needs in a variety of involved health structures of the organisation (i.e. acute ward, community service, GP and psychiatrists). In order to improve assessment, diagnosis and therapy for patients, LHA N.9 has created a network and clinical data sharing between GPs and specialists through the Medical Health Record and VC service. The purpose is early detection of the disease, effective treatment from the first access to primary care, and an improvement of the follow up support for diagnosis and planning of treatment.

Schön Klinik

There has been a combination of outpatient treatment provided by videoconference and cCBT elements. Two patient groups have been targeted with the treatment: clients in rural areas as an alternative to face-to-face psychotherapy; and inpatients who do not have outpatient treatment following inpatient treatment as an alternative to outpatient psychotherapy.

The patient is at home using his own computer anywhere in Germany, while the therapist is a clinic employee in Bad Arolsen. The sessions have been regular outpatient CBT care with the only difference that client and therapist are not in the same room, and that the client can also use cCBT sessions, mainly as "homework".

GiG

GiG has worked to use VC within their cCBT protocol. The use of video has replaced some face-to-face sessions in their blended protocol in order to further lower the threshold for treatment.

PHB

VC has facilitated communication between specialist and Crisis Teams and/or Community Mental Health Teams with the patient also present, or within the specialist teams in order to ensure the best outcome for patients with more complex needs within the range of mild to moderate depression. It may involve the patient in primary care or at an alternative Health Board site.

ASL TO3

VC has been made available for GPs so that they were able to get online support from specialists, with or without patients present, as needed. The same equipment has been made available at patients' homes as well, to allow patients to get in touch with the doctors when needed (e.g. to monitor treatment, as well as to monitor the cCBT course if the patient is also receiving it). Finally, the equipment has been made available for both acute and post-acute care.

Osakidetza

The Basque Country has decided to use the first modality of video, collaborative care between GP and specialist. GPs and specialists have organised regular videoconferences to analyse and discuss complex case management. VC has been used as a non face-to-face clinical session. In addition, GPs have been able to contact the specialist by videoconference in order to ask specific questions or resolve doubts, so his/her decision making capacity increases. Specialists have also contacted the GP when he needs a general overview of the patient´s health status or social context.

SERGAS

SERGAS initially used VC as collaborative care between specialist and GP. After the service was introduced and accepted by the health professionals, video enhanced collaborative care also included patients where necessary.

SALUD

SALUD has worked to facilitate interaction between GPs and specialists from the mental care area. The main goal of these teleconsultation activities was to give support, feedback and training to GPs, especially in the health centres located in remote areas. VC has also been used to complement the cCBT pilots at different stages, for tele-advice or tele-consultation for diagnosis and follow-up.

3.2.4 Recruitment and reach of MasterMind services

In total 878 patients are included in the project covering both cCBT and ccVC. 838 patients have received treatment using ccVC or a combination of ccVC and cCBT. Information on 769 of these patients has been uploaded to the database, and has been part of the data analysis in this report.

Reach is defined as the absolute number, proportion, and representativeness of individuals who are willing to participate in a given intervention[24]. In this document, reach is reported by:

a) prevalence of depression in target region;
b) potentially eligible patients to receive services
c) patients who are targeted by recruitment strategy;
d) patients to whom the services are offered;
e) patients who are recruited;
f) patients who completed treatment; and
g) reach (as in percent participating [f divided by b]).

The following table describe this information for the twelve WP7 sites with maximal accuracy. Due to the differences in healthcare systems and trial sites, a more thorough comparison has not been attempted.

In total, reach (here defined as the number of recruited patients divided by the number of eligible patients in the specific target region) between 0.01% and 3.2% has been reported. This huge difference can only be partially be explained by the presence of alternative treatments, and therefore needs further exploration. Table 7 shows the reach of the WP7 pilots.

[24] Glasgow RE, Vogt TM, Boles SM: Evaluating the public health impact of health promotion interventions: The RE-AIM framework. Am J Public Health 1999, 89:1322–1327

Table 7: Reach

	Region											
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Greenland**
Prevalence of depression in target region (A)	1.116	5,2%	35.068	10%	18%	8%	4%	10,6%	4%	10%	2%	10%
Potentially eligible patients to receive services (B)	117	41.192	44.000	3.500	39.404	10.614	4.297	25.105	101.424	21.600	8000	5.600
Patients whom are targeted by recruitment strategy (C)	117	41.192	643	3.500	1.107	10.614	55	8000	1.334	1188	200	5.600
Patients to whom the services are offered (D)	117	6	268	34	200	8	24	1500	122	400	200	30
Patients who are recruited (E)	19	6	205	28	182	8	24	204	91	67	200	30
Patients who completed treatment (F)	13	1		28	23	8	24	79	12	50	151	30
Reach (% participating [participants/eligible])	16%	0,01%	0,5%	0,8%	0,5%	0,01%	0,6%	0,8%	0,1%	0,3%	2,5%	0,5%

3.2.5 Demographic characteristics of patients (core)

In total, 769 patients have been registered in WP7, see Table 8. Some have received direct treatment over video conference, while others have had their cases discussed between healthcare professionals as part of collaborative care. For some of the patients who have not received direct treatment, some demographic data is missing. The demographic data is missing for the Norwegian pilot; 15 of the 28 Norwegian patients received direct treatment, while the rest were part of collaborative care. The number of registered patients at each site varies a lot, from five in Netherlands and eight in Wales, to 210 in Treviso and 236 in Germany. Other findings include:

- The mean age of the patients was 50 years. Denmark has the highest mean age at 76 years, since they were targeting an elderly population.
- 64.6% of the patients are female.

- 39.9% of the patients have secondary education, while 40,3% have higher education.
- 58.9% of the patients are employed.
- 40.5% of the patients had been referred to the service by GPs, 47% by psychologists, 9,9% by psychiatrists, and 2.6% by other healthcare workers.
- 57.2% of patient use anti-depressants.

Table 8: Demographic characteristics of patients (core)

	Region												
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Greenland**	**Total**
Sample: *n*	18	5	236	28	12	8	25	78	54	67	210	28	769
Age years: mean (SD)	76 (6)	39 (10)	46 (12)	-	43 (14)	48 (17)	60 (17)	46 (12)	55 (18)	49 (14)	46 (13)	41 (13)	50 (17)
Gender: *n* (%)													
Male	6 (33,3%)	0	87 (36,9%)	-	2 (16,7%)	4 (50%)	7 (28%)	29 (37,2%)	15 (27,8%)	28 (41,8%)	78 (37,1%)	6 (22,2%)	262 (35,4%)
Female	12 (66,7%)	5 (100%)	149 (63,1%)	-	10 (83,3%)	4 (50%)	18 (72%)	49 (62,8%)	39 (72,2%)	39 (58,2%)	132 (62,9%)	21 (77,8%)	478 (64,6%)
Education: *n* (%)													
Primary	4 (22,2%)	0	35 (16,7%)	-	1 (14,3%)	0 (0%)	-	11 (14,3%)	21 (48,8%)	4 (6%)	7 (3,3%)	10 (35,7%)	93 (13,8%)
Secondary	1 (5,6%)	3 (60%)	141 (67,1%)	-	1 (14,3%)	3 (42,9%)	-	22 (28,6%)	13 (30,2%)	21 (31,3%)	61 (30,5%)	2 (7,1%)	268 (39,9%)
Higher / University	1 (5,6%)	2 (40%)	26 (12,4%)	-	5 (71,4%)	4 (57,1%)	-	41 (53,2%)	9 (20,9%)	42 (62,7%)	140 (66,7%)	1 (3,6%)	271 (40,3%)
Other	12 (66,7%)	0	8 (3,8%)	-	0 (0%)	0 (0%)	-	3 (3,9%)	0 (0%)	0 (0%)	2 (1,0%)	15 (53,6%)	40 (6,0%)
Immigrated: *n* (%)	1 (5,6%)	1 (20%)	-	-	0 (0%)	0 (0%)	0 (0%)	1 (1,3%)	1 (1,9%)	11 (16,7%)	11 (13,6%)	3 (10,7%)	29 (4,8%)
In employment: *n* (%)	0 (0%)	1 (20%)	154 (73,3%)	-	6 (85,7%)	2 (25%)	0 (0%)	44 (57,9%)	22 (41,5%)	31 (46,3%)	130 (62,2%)	15 (55,6%)	405 (58,9%)
Service referral: n (%)													

	Region												
	Denmark	Netherlands	Germany	Norway	Basque Country	Wales	Arágon	Badalona	Galicia	Piemonte	Treviso	Greenland	Total
General practitioner	0	0	0	-	12 (100%)	0 (0%)	10 (40%)	66 (84,6%)	54 (100%)	41 (61,2%)	0	25 (89,3%)	208 (40,5%)
Psychiatrist	0	5 (100%)	0 (0%)	-	0	8 (100%)	15 (60%)	7 (9%)	0	16 (23,9%)	0	0 (0%)	51 (9,9%)
Psychologist	0	0	236 (100%)	-	0	0	0	5 (6,4%)	0	0	0	0	241 (47%)
Other mental health professional	0	0	0 (0%)	-	0	0	0	0	0	1 (1,5%)	0	2 (7,1%)	3 (0,6%)
Self-referral	0	0	0 (0%)	-	0	0	0	0	0	8 (11,9%)	0	1 (3,6%)	9 (1,8%)
Anti-depressant medication use: n (%)													
Yes, for less than one month	0	0	12 (5,7%)	-	1 (14,3%)	1 (12,5%)	0	1 (1,3%)	11 (20,4%)	4 (6%)	25 (12,1%)	3 (10,7%)	58 (8,4%)
Yes, for less than 2 months	0	1 (20%)	8 (3,8%)	-	0	3 (37,5%)	0	9 (11,5%)	2 (3,7%)	3 (4,5%)	13 (6,3%)	0	39 (5,7%)
Yes, for more that 2 months	0	3 (60%)	96 (45,7%)	-	1 (14,3%)	3 (37,5%)	25 (100%)	25 (32,1%)	38 (70,4%)	25 (37,3%)	77 (37,2%)	4 (14,3%)	297 (43,1%)
No	0	1 (20%)	94 (44,8%)	-	5 (71,4%)	1 (12,5%)	0	43 (55,1%)	3 (5,6%)	35 (52,2%)	92 (44,4%)	21 (75%)	295 (42,8%)

3.2.6 Demographic characteristics of healthcare professionals (core)

Data from 196 healthcare workers who are involved with ccVC has been collected. Table 9 below shows the demographic characteristics; in the table, the percentages relate to the numbers of healthcare workers who answered each individual question, and not necessarily the overall sample. Of the healthcare workers reported:

- 59% are female.
- 56% are GPs, while most of the remainders are psychologists or psychiatrists.

- 58% have more than 10 years' experience, 17% have less than 3 years' experience, 12% have between 3 and 5 years' experience, and 13% have between 28% of the healthcare workers have used ccVC more than 20 times already, while 49% have used it four times or less.
- 5 and 10 years' experience.

Table 9: Demographic characteristics of healthcare professionals (core)

	Region												
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Greenland**	**Total**
Sample: *n*	9	1	16	2	8	11	7	69	10	23	38	2	196
Gender: *n* (%)													
Male	2 (22%)	0	5 (33,3%)	0 (0%)	4 (50%)	7 (63,6%)	2 (28,6%)	21 (30,4%)	2 (20%)	13 (56,5%)	22 (57,9%)	2 (100%)	80 (41,0%)
Female	7 (78%)	1 (100%)	10 (66,7%)	2 (100%)	4 (50%)	4 (36,4%)	5 (71,4%)	48 (69,6%)	8 (80%)	10 (43,5%)	16 (42,1%)	0 (0%)	115 (59,0%)
Profession: n (%)													
General practitioner	0	0	0	0	3 (37,5%)	0	3 (42,9%)	56 (81,2%)	8 (80%)	19 (82,6%)	19 (51,4%)	0	108 (55,7%)
Licensed psychologist	0	0	2 (13,3%)	0	2 (25%)	0	0	3 (4,3%)	0	3 (13%)	6 (16,2%)	0	16 (8,2%)
Psychologist (in training)	0	0	8 (53,3%)	0	0	0	0	0	0	0	0	2 (100%)	10 (5,2%)
Psychologist (basic training)	0	0	5 (33,3%)	1 (50%)	1 (12,5%)	0	0	0	0	0	1 (2,7%)	0	8 (4,1%)
Licensed psychiatrist	3 (33%)	0	0	0	0	2 (18,2%)	2 (28,6%)	1 (1,4%)	0 (0%)	1 (4,3%)	2 (5,4%)	0	11 (5,7%)
Psychiatrist (in CBT training)	0	0	0	1 (50%)	0	1 (9,1%)	0	0	1 (10%)	0	6 (16,2%)	0	9 (4,6%)
Psychiatrist (diploma in CBT)	0	0	0	0	0	1 (9,1%)	0	0	0	0	1 (2,7%)	0	2 (1,0%)
Psychiatrist (master)	0	0	0	0	0	0	1 (14,3%)	1 (1,4%)	1 (10%)	0 (0%)	2 (5,4%)	0	5 (2,6%)
Psychiatrist (doctorate)	0	0	0	0	2 (25%)	0	0	0	0	0	0	0	2 (1,0%)

	Region												
	Denmark	Netherlands	Germany	Norway	Basque Country	Wales	Arágon	Badalona	Galicia	Piemonte	Treviso	Greenland	Total
MH / community worker	0	0	0	0	0	6 (54,5%)	0	0	0	0	0	0	6 (3,1%)
Central administrator	0	0	0	0	0	0	0	2 (2,9%)	0	0	0	0	2 (1,0%)
Other	6 (67%)	1 (100%)	0	0	0	1 (9,1%)	1 (14,3%)	6 (8,7%)	0	0	0	0	15 (7,7%)
Field experience: n (%)													
Less than 3 years	1 (11%)	0	6 (40%)	0	0	0	5 (71,4%)	9 (13%)	0	2 (9,1%)	6 (18,2%)	2 (100%)	31 (17,3%)
Between 3 and 5 years	1 (11%)	0	5 (33,3%)	0	2 (25%)	1 (9,1%)	0 (0%)	11 (15,9%)	0	1 (4,5%)	1 (3%)	0	22 (12,3%)
Between 5 and 10 years	4 (44%)	0	3 (20%)	1 (50%)	0 (0%)	0	1 (14,3%)	8 (11,6%)	0	6 (27,3%)	0 (0%)	0	23 (12,8%)
10 years or more	3 (33%)	1 (100%)	1 (6,7%)	1 (50%)	6 (75%)	0	1 (14,3%)	41 (59,4%)	10 (100%)	13 (59,1%)	26 (78,8%)	0	103 (57,5%)
Experience with providing ccVC: n (%)													
Less than 5 times	-	0	3 (20%)	1 (50%)	8 (100%)	9 (81,8%)	7 (100%)	8 (11,9%)	6 (60%)	14 (60,9%)	31 (93,9%)	0	87 (48,6%)
Between 5 and 10 times	-	0	0	0	0	1 (9,1%)	0	2 (3%)	4 (40%)	5 (21,7%)	2 (6,1%)	0	14 (7,8%)
Between 10 and 15 times	-	0	1 (6,7%)	0	0	1 (9,1%)	0	8 (11,9%)	0	3 (13%)	0 (0%)	0	13 (7,3%)
Between 15 and 19 times	-	1 (100%)	0	0	0	0	0	14 (20,9%)	0	0	0	0	15 (8,4%)
More than 20 times	-	0	11 (73,3%)	1 (50%)	0	0	0	35 (52,2%)	0	1 (4,3%)	0 (0%)	2 (100%)	50 (27,9%)

3.2.7 Demographic characteristics of mental healthcare organisations (core)

Table 10 shows the demographic characteristics of the mental healthcare organisations involved. The number of registered organisations for each partner is between one and three. Both the number of units and the number of FTEs employed vary greatly. The majority of the organisations have an annual turnover of over 50 million €. Two thirds of the organisations have a waiting time under four weeks. We are missing data from Greenland here.

Table 10: Demographic characteristics of mental healthcare organisations (core)

	Region												
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Greenland**	**Total**
Year of establishment	2011	2007	2008	2008	1983	1948	1989	1932	1990	2008	2000	-	
Number of units / departments: *mean (range)*	9 (7)	9 (.)	1 (.)	16 (.)	49 (2)	10 (.)	17 (.)	30 (0)	1250 (.)	14 (.)	2 (.)	-	107 (329)
Number of FTE employed: *mean (range)*	1.521 (2092)	1.383 (.)	210 (.)	300 (.)	3.679 (1.869)	1.389 (.)	900 (.)	1.000 (0)	36.000 (.)	3.922 (.)	200 (.)	-	4.050 (9.315)
Turnover: *mean (range)*	3 (2)	4 (.)	3 (.)	3 (.)	4 (0)	4 (.)	4 (.)	4 (0)	4 (.)	4 (.)	3 (.)	-	4 (1)
Waiting list: *categorical*													
less than a week	0	0	0	0	2 (100%)	0	0	2 (100%)	1 (100%)	0	0	-	5 (35,7%)
between 1 and 4 weeks	2 (100%)	0	0	0	0	1 (100%)	0	0	0	1 (100%)	1 (100%)	-	5 (35,7%)
1 and 2 months	0	1 (100%)	0	1 (100%)	0	0	1 (100%)	0	0	0	0	-	3 (21,4%)
between 2 and 6 months	0	0	1 (100%)	0	0	0	0	0	0	0	0	-	1 (7,1%)
more than 6 months	0	0	0	0	0	0	0	0	0	0	0	-	0 (0%)

3.3 Summary and conclusions

All pilot sites in WP7 have enrolled participants In MasterMind using videoconference. However, there is a variation in numbers between sites and not all sites have patients directly involved in the videoconference consultations. For some sites, the service has been used between professionals to discuss patient cases.

Different inclusion and exclusion criteria between the pilot sites in WP7 are causing difference in numbers for reach. Each site has its own strategy for enrolling participants in the study adapted to local conditions and protocols, taking into account the project's overall strategy. Furthermore, there is a great variation in the size of the target population for each site.

Many of the pilot sites encountered problems that interfered with the recruitment of participants with respect to ccVC. These problems are mainly related to implementation, engaging healthcare professionals, ethical approval, procurement activities, and the technical solutions.

Some sites have encountered some difficulties related to the engagement of clinicians, and consequently in the enrolment of patients. A lack of motivation has been experienced among the healthcare professionals due to different reasons, such as change in daily work routines, new time-consuming processes, and low ICT literacy. Some healthcare professionals have limited ICT skills and lack confidence in using the technology. All sites have worked hard to meet these challenges and the most important corrective actions have been information and continuous training activities to make professionals involved, and support for the GPs in order to help and collaborate with them. Furthermore, efforts have been made to elaborate collaboration among healthcare professionals, GPs, and project managers.

Recruiting patients is often time-consuming and can take a lot of effort. Several of the sites have experienced the importance of making the procedure for referral easy and transparent. It has been important to support both GP and healthcare professionals to help them to identify and overcome possible difficulties in recruiting.

Some of the sites have experienced a high number of dropouts, and it has been necessary to make efforts overcome this. Some sites have established education for the patients, and others have tried to "personify" the inclusion and follow up of the patient, including training and face-to-face sessions.

It has become clear that almost all sites have experienced some kind of problems / challenges with respect to recruitment, but also that they have learnt some very valuable lessons for the future work with implementing and recruitment.

Information on 769 patients has been uploaded to the database. The start-up for using videoconference has been more complex and time-consuming than expected and more of the sites have had delays in enrolling patients. However, all sites have managed to enrol participants and have created a very solid basis for the future use of video-conference. The mean age of the patients is 50 years and both younger and elderly patients have been enrolled in WP7 around the sites. More women have been enrolled in WP7 and the patients are characterised by having secondary education or longer education.

Healthcare professionals have been recruited and trained at the individual sites before the trials started. The type and specialisations of the involved professionals are highly dependent on the local institutional setups and reference pathways, and differ between sites. The professionals in WP7 include Psychologists, Medical Doctors, General Practitioners, Nurses, Psychiatrists, and Mental Health Care Workers. In WP7, there has been collected data from 196 healthcare workers who were involved with ccVC. Of the healthcare workers reported, 58% are female and the majority of the healthcare professionals involved in WP7 in characterised by having more than 10 years of experience.

4. Domain 2 and 3: Safety and clinical effectiveness

4.1 Introduction

The data within the context of domains 2 and 3 establish information on safety and the clinical effectiveness of the services in real world settings. The data for safety focuses on suicidality, drop-outs, and treatment attrition, together with safety issues as perceived by the healthcare professionals. In terms of clinical effectiveness, the variables included address the symptoms and methods for establishing symptoms, referral modalities, quality of life, access to the systems, and reasons for drop-outs and attrition rates.

Data for these domains are both quantitative and qualitative, and are used to answer the project objectives around:

- Barriers and facilitators that influences the implementation of ccVC to treat depression in routine practice.
- Clinical changes of patients' depressive symptoms when treated using ccVC in routine practice.
- Patients' safety in terms of their health when provided with ccVC in routine practice.
- Transferability of implementation and up-scaling of ccVC in routine practice in different care contexts.

The instruments used to collect the data include Routine Outcome Measurements (ROM), the treatment platforms, and online questionnaires.

Together with domains 1 and 4, these results enable drawing conclusions in terms of the acceptability and appropriateness of the services in alleviating depressive symptoms. Acceptability is the perception among patients that the received treatment is agreeable, palatable, or satisfactory[25]. Appropriateness is the perceived fit, relevance, or compatibility of the treatment for the patient in addressing his or her mental disorder[25]. Acceptability and appropriateness are measured through:

- establishing change in depressive symptoms and quality of life (domain 3);
- establishing perceived satisfaction with the treatment (domain 4);
- establishing the perceived usability of the treatment (domain 4); and
- treatment attrition (domain 2 and 3).

The methods for measuring the symptoms of depression adhere to routine practice, and are recorded through: clinical interview; professional clinical judgement; or a symptom questionnaire. Symptoms are recorded in terms of no, mild, moderate and severe symptoms according to routine practice diagnostic procedures (e.g. PHQ-9, BDI, etc.) using appropriate transformation scales if needed.

[25] Proctor E. et al. Administration and policy in mental health. Springer US, 2011

4.2 Results

4.2.1 Clinical safety

This topic relates to concerns about to the clinical safety of the patient and the confidentiality their data. The results are based on both quantitative and qualitative data.

In the area of clinical safety, we have data from 528 patients. There are no large differences in age, gender or employment status of these patients compared to the core set. This set has a mean age of 48, compared to 50 in the core set, 62.6% female compared to 64.7%, and 59.2% employment compared to 57.8% in the core set. Only 6.2 % of the subset had an immigration background. There are no data from Denmark, Norway or Galicia.

Information from 526 patients about suicide ideation has been gathered, and is presented in **¡Error! La autoreferencia al marcador no es válida.**. Of the 526 patients for whom we have data, 6% have been thinking lately to end his/her life. This numbers varies in the different countries, from no patients in Netherlands, Wales and Piemonte, to 24% in Greenland and 29% in Basque Country. However, for many pilots the sample sizes are small. One patient (0.2%) has attempted suicide.

Table 11: Clinical safety: suicidal ideation

	Region												
	Denmark	Netherlands	Germany	Norway	Basque Country	Wales	Arágon	Badalona	Galicia	Piemonte	Treviso	Greenland	Total
Subset n	0	1	168	0	7	8	39	78	0	92	110	25	528
Has the patient being thinking lately to end his/her life? n (%)													
Yes	-	0	11 (6,5%)	-	2 (28,6%)	0	3 (8,1%)	2 (2,6%)	-	0	6 (5,5%)	6 (24%)	30 (5,7%)
No	-	1 (100%)	157 (93,5%)	-	5 (71,4%)	8 (100%)	34 (91,9%)	76 (97,4%)	-	92 (100%)	104 (94,5%)	19 (76%)	496 (94,3%)
During the treatment, has the patient attempted to commit suicide? n (%)													
Yes	-	0	0	-	0	0	0	0	-	0	1 (0,9%)	0	1 (0,2%)
No	-	1 (100%)	168 (100%)	-	7 (100%)	8 (100%)	39 (100%)	78 (100%)	-	92 (100%)	109 (99,1%)	25 (100%)	527 (99,8%)

Qualitative data

The main findings coming from the qualitative analysis are:

- Professionals who adopted VC did not observe any privacy issues from the patients, and relied on programme managers and platform developers for information about privacy.
- The professionals indicated that it is important to be aware of where the patients are when conversations take place.
- All involved in the VC session know that the other part is alone, or is informed if anyone else is in the room
- One group highlighted the need for individual risk assessment for each patient.

Appendix A.1 contains more details on the findings from the focus group interviews, which substantiate the factors that relate to concerns about the clinical safety of the patients and the confidentiality their data.

4.2.2 Clinical effectiveness in symptom reduction

Table 12 shows the clinical effectiveness in symptom reduction. Norway, Wales, Galicia and Treviso have not involved patients directly, have not recorded this data, and have been excluded from the table. In summary:

- The patients in this data have a mean age close to the core dataset, with 60.3% female patients.
- More than half have been referred by a general practitioner, and 53.7 % use anti-depressants.
- At baseline, very severe symptoms were 3.8%, reduced to 0.9% at the end of treatment.
- At baseline, severe symptoms were 16.5%, reduced to 9.8% at the end of treatment.
- At baseline, moderate symptoms were 42.3%, reduced to 20.9% at the end of treatment.
- At baseline, mild symptoms were 35%, changed to 35.9% at the end of treatment.
- At baseline, no symptoms experienced were 2.6 %, this is increased to 32.5% at the end of treatment.

- The current depressive episode is reported to have lasted more than 5 years in 5.9 % of cases, between 1 and 5 years in 26.2 % of cases, between 6 months and a year in 23.1 % of cases, and less than 6 months in the remaining 44.8 % of cases.

Table 12: Clinical effectiveness in symptom reduction

	Region																	
	Denmark		Netherlands		Germany		Basque Country		Arágon		Badalona		Piemonte		Greenland		Total	
	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End
Subset n	4		1		56		12		24		78		50		9		234	
Symptoms of depressive disorder: *n (%)*																		
No symptoms are experienced	0	2 (50%)	0	0	0	22 (39,3%)	0	0	2 (8,3%)	0 (0%)	4 (5,1%)	35 (44,9%)	0	8 (16%)	0	9 (100%)	6 (2,6%)	76 (32,5%)
Symptoms are mild	0	0	0	0	1 (1,8%)	19 (33,9%)	1 (8,3%)	2 (16,7%)	8 (33,3%)	10 (41,7%)	54 (69,2%)	33 (42,3%)	10 (20%)	20 (40%)	8 (88,9%)	0	82 (35%)	84 (35,9%)
Symptoms are moderate	2 (50%)	1 (25%)	0 (0%)	0 (0%)	43 (76,8%)	11 (19,6%)	5 (41,7%)	4 (33,3%)	11 (45,8%)	11 (45,8%)	18 (23,1%)	9 (11,5%)	19 (38%)	13 (26%)	1 (11,1%)	0	99 (42,3%)	49 (20,9%)
Symptoms are severe	0	1 (25%)	0	1 (100%)	12 (21,4%)	4 (7,1%)	6 (50%)	6 (50%)	3 (12,5%)	3 (12,5%)	2 (2,6%)	1 (1,3%)	15 (30%)	7 (14%)	0	0	38 (16,2%)	23 (9,8%)
Symptoms are very severe	2 (50%)	0	1 (100%)	0 (0%)	0	0	0	0	0	0	0	0	6 (12%)	2 (4%)	0	0	9 (3,8%)	2 (0,9%)
Current depressive episodes: *n (%)*																		
Less than 4 weeks	0		0		1 (1,9%)		0		0		0		2 (4,1%)		0		3 (1,4%)	
Between 4 and 8 weeks	0		0		0 (0%)		2 (28,6%)		2 (8,3%)		7 (9%)		1 (2%)		0		12 (5,4%)	
Between 8 and 12 weeks	0		0		2 (3,8%)		1 (14,3%)		8 (33,3%)		14 (17,9%)		8 (16,3%)		1 (11,1%)		34 (15,4%)	
Between 3 and 6 months	0		0		12 (22,6%)		2 (28,6%)		0 (0%)		23 (29,5%)		12 (24,5%)		1 (11,1%)		50 (22,6%)	
Between 6 month to a year	0		0		16 (30,2%)		1 (14,3%)		0 (0%)		16 (20,5%)		15 (30,6%)		3 (33,3%)		51 (23,1%)	
Between 1 year and 3 years	0		0		15 (28,3%)		0		3 (12,5%)		13 (16,7%)		4 (8,2%)		3 (33,3%)		38 (17,2%)	
3 to 5 years	0		1 (100%)		5 (9,4%)		0		5 (20,8%)		5 (6,4%)		3 (6,1%)		1 (11,1%)		20 (9%)	
5 to 10 years	0		0		1 (1,9%)		1 (14,3%)		6 (25%)		0		4 (8,2%)		0		12 (5,4%)	
More than 10 years	0		0		1 (1,9%)		0		0		0		0		0		1 (0,5%)	

4.2.3 Clinical change

In order to depict the change in symptom severity further, difference scores have been calculated between the symptom severity before and after treatment. “Reduction in one category” means that the patient symptoms were reduced by one severity category, e.g. from very severe to severe depressive symptoms, severe to moderate, moderate to mild or mild to no symptoms. Accordingly, “reduction in two categories” depicts patients whose depressive symptom severity was reduced either from very severe to moderate, from severe to mild, or from moderate to no symptoms. Under “deterioration” the number of patients are shown who experienced a higher level of depressive symptom severity after treatment than before.

In the reported data, 59% of the patients have had a reduction in severity, 39% by one category, and 19% by two categories. 36% have reported no change, and 6% have had deterioration. Table 13 shows the clinical effectiveness in symptom reduction.

Table 13: Clinical change in symptom severity at baseline to end

	Region								
	Denmark	**Netherlands**	**Germany**	**Basque Country**	**Arágon**	**Badalona**	**Piemonte**	**Greenland**	**Total**
Change in depressive symptom severity: n (%)									
Reduction in one category	1 (25%)	1 (100%)	20 (36%)	1 (8%)	1 (4%)	36 (46%)	24 (48%)	8 (89%)	92 (39%)
Reduction in two categories	2 (50%)	0	24 (43%)	0	0	7 (9%)	10 (20%)	1 (11%)	44 (19%)
Deterioration:	0	0	2 (4%)	0	2 (8%)	5 (6%)	4 (8%)	0	13 (6%)
No change:	1 (25%)	0	10 (18%)	11 (92%)	21 (89%)	30 (39%)	12 (24%)	0	85 (36%)

4.2.4 Quality of life

Table 14 shows the results obtained with the MANSA questionnaire to assess the patient´s perception regarding the quality of life. No data were collected for Norway, Wales, Aragon, Galicia and Treviso. In summary:

- The total baseline for “Couldn’t be worse”, “Displeased”, and “Mostly dissatisfied” is 54.2%. This is reduced to 23.7% at the end of treatment.
- The baseline for “Mixed” is 33.5% at baseline, and 36.5% at the end of treatment.
- The total baseline for “Mostly satisfied”, “Pleased”, and “Couldn’t be better” is 12.3%. This is increased to 40% at the end of treatment.

Table 14: Quality of life

	Region															
	Denmark		Netherlands		Germany		Basque Country		Badalona		Piemonte		Greenland		Total	
	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End	B/line	End
Satisfaction with life: n (%)																
Couldn´t be worse	1 (25%)	0	1 (100%)	0	0	1 (1,8%)	2 (40%)	1 (20%)	4 (5,1%)	0	0	0	0	0	8 (3,9%)	2 (1%)
Displeased	1 (25%)	0	0	0	12 (21,4%)	4 (7,1%)	0	0	12 (15,4%)	4 (5,1%)	16 (32%)	8 (16%)	5 (55,6%)	1 (11,1%)	46 (22,7%)	17 (8,4%)
Mostly dissatisfied	0	1 (25%)	0	0	14 (25%)	6 (10,7%)	1 (20%)	1 (20%)	30 (38,5%)	17 (21,8%)	8 (16%)	4 (8%)	3 (33,3%)	0	56 (27,6%)	29 (14,3%)
Mixed	0	1 (25%)	0	1 (100%)	18 (32,1%)	18 (32,1%)	2 (40%)	2 (40%)	32 (41%)	36 (46,2%)	15 (30%)	14 (28%)	1 (11,1%)	2 (22,2%)	68 (33,5%)	74 (36,5%)
Mostly satisfied	2 (50%)	0	0	0	7 (12,5%)	12 (21,4%)	0	1 (20%)	0	10 (12,8%)	8 (16%)	18 (36%)	0	5 (55,6%)	17 (8,4%)	46 (22,7%)
Pleased	0	2 (50%)	0	0	4 (7,1%)	15 (26,8%)	0	0	0	7 (9%)	3 (6%)	5 (10%)	0	1 (11,1%)	7 (3,4%)	30 (14,8%)
Couldn´t be better	0	0	0	0	1 (1,8%)	0	0	0	0	4 (5,1%)	0	1 (2%)	0	0	1 (0,5%)	5 (2,5%)
Satisfaction with mental health: n (%)																
Couldn´t be worse	1 (25%)	0 (0%)	1 (100%)	0	0	0	0	0	3 (3,8%)	0	0	1 (2%)	0	0	5 (2,5%)	1 (0,5%)
Displeased	0	0	0	0	15 (26,8%)	9 (16,4%)	2 (40%)	1 (20%)	10 (12,8%)	5 (6,4%)	23 (46%)	9 (18%)	2 (22,2%)	1 (11,1%)	52 (25,6%)	25 (12,4%)
Mostly dissatisfied	1 (25%)	1 (25%)	0	0	15 (26,8%)	2 (3,6%)	3 (60%)	4 (80%)	23 (29,5%)	11 (14,1%)	13 (26%)	7 (14%)	3 (33,3%)	1 (11,1%)	58 (28,6%)	26 (12,9%)
Mixed	1 (25%)	1 (25%)	0	1 (100%)	13 (23,2%)	14 (25,5%)	0	0	36 (46,2%)	31 (39,7%)	8 (16%)	13 (26%)	4 (44,4%)	3 (33,3%)	62 (30,5%)	63 (31,2%)
Mostly satisfied	1 (25%)	0	0	0	6 (10,7%)	11 (20%)	0	0	6 (7,7%)	20 (25,6%)	5 (10%)	15 (30%)	0	2 (22,2%)	18 (8,9%)	48 (23,8%)
Pleased	0	2 (50%)	0	0	5 (8,9%)	18 (32,7%)	0	0	0	5 (6,4%)	1 (2%)	5 (10%)	0	2 (22,2%)	6 (3%)	32 (15,8%)
Couldn´t be better	0	0	0	0	2 (3,6%)	1 (1,8%)	0	0	0	6 (7,7%)	0	0	0	0	2 (1%)	7 (3,5%)

4.2.5 Appropriateness of MasterMind services in alleviating depressive disorder in routine practice

Table 15 shows the appropriateness of MasterMind services. Again, we see no major differences between this set and the core dataset. The mean age is 48 years, there are 62.4% female patients, 6.6% have an immigrant background, 48.1% are referred by a GP, and 55.3% use anti-depressants. Access to the service varies from pilot to pilot. In Denmark, Netherlands, Germany and Piemonte, all or the large majority of patients have access to the service at an individual, personal location, e. g. at home. In Badalona, most have access at a care institution. Only 14% indicate that they completed all sessions as planned. The most common reasons for not completing all sessions reported are that the therapist and patient concluded that there was no use to continue treatment (7.8%), and that the patient was not convinced that the therapy solves their problems (4.7%).

No data was recorded for Norway, Wales, Aragon, Galicia and Greenland.

Table 15: Appropriateness of MasterMind services in alleviating depressive disorder in routine practice

	Region							
	Denmark	**Netherlands**	**Germany**	**Basque Country**	**Badalona**	**Piemonte**	**Treviso**	**Total**
Subset (n)	7	1	84	12	78	50	158	390
Access to service: n (%)								
Individual, personal location (e.g. at home)	7 (100%)	1 (100%)	84 (100%)	0	0	46 (92%)	0	138 (32,5%)
Community location	0	0	0	0	0	0	0	0
At care institution	0	0	0	0	78 (100%)	1 (2%)	0	79 (18,6%)
Number of sessions completed in total: *mean (sd)*	1,71 (1,8)	26	14,86 (9,1)	NA	3,1 (0,56)	2,89 (1,8)	NA	7,7 (,21)
Number of sessions completed online: *mean (sd)*	NA	NA	14,86 (9,1)	3,14 (3,63)		5,76 (1,95)	3,74 (3,19)	7,78 (7,61)
I completed all sessions that were planned	1 (14,3%)	0	60 (71,4%)	0	0	1 (2%)	0	62 (14,6%)
I had problems with my internet connection and/or my computer was not functioning	0	0	0	0	0	0	0	5 (1,2%)
I don´t have a computer	0	0	0	0	0	0	0	0
I don´t trust the online sessions are secure	2 (28,6%)	0	0	0	0	1 (2%)	0	3 (0,7%)

	Region							
	Denmark	**Netherlands**	**Germany**	**Basque Country**	**Badalona**	**Piemonte**	**Treviso**	**Total**
I don´t have enough skills to follow the online sessions	3 (42,9%)	0	0	0	0	0	0	3 (0,7%)
I forgot to attend the online sessions	0	0	4 (4,8%)	0	1 (1,3%)	0	0	5 (1,2%)
I ran out of time	0	0	0	0	1 (1,3%)	0	0	1 (0,2%)
I was ill	0	0	0	0	2 (2,6%)	0	0	2 (0,5%)
I had to work	0	0	0	0	1 (1,3%)	0	0	1 (0,2%)
My family did not support me	0	0	0	0	0	0	0	0 (0%)
I did not want to share my personal information through internet	0	0	0	0	18 (23,1%)	0	0	18 (4,2%)
For other therapeutic reasons	0	0	6 (7,1%)	0	3 (3,8%)	0	0	9 (2,1%)
I am not convinced that the therapy solves my problems	0	0	0	0	20 (25,6%)	0	0	20 (4,7%)
The therapist and I concluded that there was no use to continue treatment	0	0	0	0	32 (41%)	1 (2%)	0	33 (7,8%)
My mental problems are alleviated	1 (14,3%)	0	0	0	0	0	0	1 (0,2%)
Other reasons	0	0	6 (7,1%)	0	0	0	0	6 (1,4%)

4.2.6 Appropriateness of MasterMind services based on focus group interviews

A number of focus group discussions were held with healthcare professionals to reflect on the appropriateness of MasterMind services. From these focus groups, it appeared that various factors are relevant to:

a) Engaging in VC delivered mental health services;

b) Appropriateness of the VC facilitated service; and

c) Adherence to the VC facilitated service;

In summary, the focus groups indicated the following factors as relevant:

- **Engaging in VC delivered mental health services:** Engagement refers to the factors that are related to the decision of a patient and professional to respectively consume or deliver the service through videoconferencing:
  - Equipment: It is crucial that patients have access to the required equipment, and that the professionals inform them about this at inclusion.
  - Geographical location: This impacts on the engagement of patients; the more the distance between patient's place and the mental health centre, the higher the appreciation of this kind of service.
  - First meeting: This should be in person for referral and consent procedures, to introduce the patient to the videoconferencing service, and establish therapeutic rapport.
  - Support from health professionals: This is a key element at initiation and engagement of the patient in the service. An important factor is the enthusiasm and "faith" of the doctor in proposing the service to the patient.
  - The need for human contact was brought to the fore by the patients who rejected the ccVC service.
- **Appropriateness of the VC facilitated service:** This relates to aspects of appropriateness of the treatment to a certain patient. Who are more likely to benefit and who not?
  - Patient group: The participants in the focus groups were undecided regarding the patient group most eligible for receiving ccVC services. There are arguments both for and against offering severely depressed patients treatment over video conference.
  - Willingness of patients: Professionals indicated that most willingness is met in patients with a healthy spouse who can support the treatment. Also, the ccVC service seems to be most appropriate for those who are employed.
  - Patient skills and characteristics: Certain combinations of skills and patient characteristics are thought to be important in determining the appropriateness of the service, primarily patient's mobility, ICT literacy, and age.
  - Adjunct to cCBT services: Professionals reported that ccVC can be appropriate especially when used as an adjunct to cCBT services, with fixed scheduled meetings. ccVC in combination with cCBT gave better results than cCBT alone. As such, focus groups suggested that ccVC should be considered as a tool to integrate various forms of mental healthcare.

- **Adherence to the VC facilitated service:** These are aspects related to the adherence of a patient to the cCBT and/or ccVC treatment. This includes reasons for 'no-show', drop-out, etc., and can shed light on missing information in the quantitative dataset:
  - Unfinished sessions: Focus groups reported that most reasons to unfinished sessions were due to unstable or not functioning ICT equipment, and unavailability of appropriate consultation rooms with equipment for the professional.
  - Equipment failures: If for example sound or video was not functioning properly in a ccVC facilitated consultation, professionals found it easier to switch to telephone or even 'normal' practice.
  - Some patients found the process of seeing the technology in action humorous, for example, incorrect camera positioning, and as a consequence were put at ease.

Appendix A.2 contains more details on the findings from the focus group interviews, which substantiate the factors related to the appropriateness of the service.

4.3 Summary and conclusions

This chapter has presented our data on clinical effectiveness from the pilots. Note that many pilots, that have not included patients directly in the VC sessions, but have implemented collaborative care without patients, have not gathered data on clinical effectiveness.

The numbers show a decrease in the both very severe and severe symptoms (respectively 3.8% to 0.9% and 16.5% to 9.8%). The number of patients with no symptoms has increased from 2.6% to 32.5%. This shows that the patients who have received care overall have improved their condition.

In the focus groups, the clinical safety of the patient and the confidentiality in their data was discussed only briefly, indicating that professionals had few concerns about patient safety and confidentiality. However, the most important topic emerging from the discussions was ensuring technological and confidential security. It was argued that patients in general do not experience much difficulty with privacy. However, professionals should remain alert to the patient's environment during consultations through videoconferencing equipment.

Of the 526 patients for whom data have been uploaded to the database, 6% had been thinking lately to end his/her life, and one patient (0.2%) attempted to commit suicide. VC has been used in close collaboration between healthcare professionals and patients. Whenever the healthcare professionals have had doubt about the safety of using the service, they have had the possibility of converting to face-to-face treatments. Because of the close contact, the professionals have been able to use their clinical judgement throughout the treatment, and to ensure the patients have a high level of safety. It has been possible to combine both VC and face-to-face treatment in the most appropriate way.

Before treatment, in total 3.9% reported that their satisfaction with life "could not be worse", and 3.4% stated to be pleased with life. After treatment, only 1% reported that their satisfaction with life "could not be worse", while 14.8% stated to be pleased with life. There is an improvement between pre-treatment and post-treatment in almost all categories. This indicates the success of using VC, and that patients are not getting worse by the use of VC.

Besides access to service and completion numbers, trial sites engaged in obtaining a rich patient profile of those to whom the service delivered through videoconferencing might be

most appropriate. This was done through a total of five focus group discussions with healthcare professionals dedicated to discussing the ccVC service in Denmark, Aragón, Badalona, Piemonte, and Wales. From these, it appeared that various factors are relevant to a) the decision to engage with a mental health service delivered through videoconferencing, b) the appropriateness of the ccVC service in alleviating the needs of the patients, and c) adherence to cCBT treatment.

According to the professionals, the decision of patients to engage in mental health services delivered through videoconferencing appeared to be related to a patient's access to the service, consent and referral procedures, and their expectations and needs. Focus groups reported that access often has to do with the required hardware and software, as well as location: those who are geographically further away from face-to-face treatment are more likely to access the VC services.

Regarding the consent and referral processes, professionals reported that support from health professionals is an important factor, especially at initiation and engagement of the patient in the service. In addition, the issue of therapeutic rapport was discussed, as the professionals believe it is important to have an established relationship of trust with the patient before treatment with video commences. Regarding the expectations and needs of the patients, professionals indicated that it is important to fully inform the patients at inclusion, and noted that a number of patients started traditional treatment after receiving mental healthcare facilitated by videoconferencing.

The appropriateness of the service was related to the symptoms a patient experiences, the context of the patient, their skills, personality traits, and attitude towards the service, and the treatment delivery processes. Regarding clinical symptoms, the focus groups were contradictory. In the first place, professionals indicated that due to the symptoms, cognitive function might be limited, and thus VC services too much demanding. On the other hand, it was argued that VC delivered services might be appropriate for patients with severe symptoms, as they often present problems of accessibility and communication; it is important to know the context of the patient. VC can facilitate this. Regarding the contextual factors, the service was deemed most appropriate for patients with a healthy spouse, and those who are in employment despite their depression. For the factors related to skills and attitude of the patient, the patient's mobility, ICT literacy, and age were the main important points to take into account. For the service delivery processes, focus groups stated that currently the technology is not robust enough to offer the services on a general basis. However, a collaborative approach might be beneficial, especially when done in combination with cCBT services.

In terms of adherence, focus groups reported that primarily technical problems are determining the completion of treatment through videoconferencing. The main reasons for not completing sessions were due to unstable or non-functioning ICT equipment, and unavailability of appropriate consultation rooms with equipment for the professional. Professionals indicated that switching to phone-mediated delivery or face-to-face format were the only options to go forward.

5. Domain 4: Patient and healthcare professional perspectives

5.1 Introduction

This domain will address the perceived satisfaction and usability of both patients and healthcare professionals. Through validated self-reported measures (CSQ-8/3 and SUS), the perspectives will be measured, and provide an indication of the acceptance and appropriateness of the services in addressing the depressive disorder. The data on satisfaction includes variables on quality, type, needs, complexity and overall satisfaction. Data on usability will describe usage, complexity, consistency, confidence, and level of integration.

Domain 4 aims to answer the following research objectives:

- To identify barriers and facilitators that influences the implementation of ccVC for treating depression in routine practice.
- To assess the perceived satisfaction and perceived usability with ccVC.
- To assess the transferability of implementation and up scaling of cCBT and ccVC into routine practice in different care contexts.

Together with domains 1, 2, 3, and 5, these results will enable drawing conclusions in terms of the acceptability and appropriateness of the services in alleviating depressive symptoms.

The data in domain 4 is based on both quantitative and qualitative data. The data provides the possibility to understand the meaning (qualitative) of the facts (quantitative) for healthcare professionals and organisations, and the interplay of both stakeholders.

5.2 Results – Patient perspectives

5.2.1 Patient's perceived satisfaction

Patient's perceived satisfaction was assessed with the Client Satisfaction Questionnaire (CSQ-8[26]). This version of the CSQ contains eight questions on consumer's satisfaction, and is easily scored by summing the individual item scores to produce a range of 8 to 32, with high scores indicating greater satisfaction. The answer options on the Likert scale linked to approval have been combined as indicating "approval", and the disapproving options as "disapproval". The items for CSQ-8 were selected on the basis of expert ratings of a number of items that could be related to client satisfaction, and by subsequent factor analysis[27]. Being one-dimensional, the measurement is equipped to provide a homogeneous estimate of general satisfaction with services. In numerous studies, the CSQ-8 has proven to extract patents' perspectives of the values brought by the service, rather than the gain of treatment or outcome.

[26] Larsen, D.L., Attkisson, C.C., Hargreaves, W.A., and Nguyen, T.D. (1979). Assessment of client/patient satisfaction: Development of a general scale, Evaluation and Program Planning, 2, 197-207. Instrument reproduced with permission of C. Clifford Attkisson.

[27] http://www.psych.ryerson.ca/cptcanadastudy/CPT_Canada_Study/Website_Materials/Client_Satisfaction_Questionnaire-Vers%202015-Oct-14.pdf

Table 16 shows the results of the CSQ-8 questionnaire from patients. This subset has a lower percentage of women, 60.9% compared to 64.7% in the core set, and higher employment status, 62.3% compared to 57.8% in the core set. The mean age is 48 years, 51% have been referred by a GP, and 52,1% use anti-depressants. Pilots who did not involve patients directly, i.e. Wales, Aragon and Galicia, did not report this data. For Norway, 15 of 28 patients were directly involved, but no data was reported.

The table shows the number and percentage of patients who indicated “approval” for each question. If we look at the combined scores, most answers are high, in the 80-90% range. The lowest score is for the question “To what extend has the treatment met your needs?” with a 69.4% score. The highest score was to the question “If a friend were in need of similar help, would you recommend this treatment to him or her?” with a 90.2% score.

The total approval is 83.3%.

Table 16: Patient's perceived satisfaction

	Region								
	Denmark	Netherlands	Germany	Basque Country	Badalona	Piemonte	Treviso	Greenland	Total
Subset n	4	1	65	1	78	50	152	7	358
1. Quality of the treatment you have received? *% approval**	0	1 (100%)	59 (90,8%)	0	18 (75%)	45 (95,7%)	0	5 (71,4%)	128 (88,9%)
2. Did you get the kind of treatment you wanted? *% approval**	3 (75%)	1 (100%)	62 (95,4%)	1 (100%)	16 (61,5%)	38 (76%)	42 (79,2%)	7 (100%)	170 (82,1%)
3. To what extend has the treatment met your needs? *% approval**	1 (25%)	1 (100%)	61 (93,8%)	0	19 (73,1%)	25 (50%)	29 (55,8%)	7 (100%)	143 (69,4%)
4. If a friend were in need of similar help, would you recommend this treatment to him or her? *% approval**	4 (100%)	1 (100%)	64 (98,5%)	1 (100%)	20 (80%)	45 (90%)	43 (82,7%)	7 (100%)	185 (90,2%)
5. How satisfied are you with the amount of help you have received? *% approval**	4 (100%)	0	62 (95,4%)	1 (100%)	15 (57,7%)	40 (80%)	42 (82,4%)	6 (85,7%)	170 (82,9%)
6. Has the treatment you received helped you to deal more effectively with your problems? *% approval**	1 (25%)	1 (100%)	60 (92,3%)	1 (100%)	17 (65,4%)	38 (76%)	41 (82%)	7 (100%)	166 (81,4%)
7. In an overall, general senses, how satisfied are you with the treatment you have received? *% approval**	0	1 (100%)	62 (95,4%)	1 (100%)	18 (69,2%)	40 (80%)	73 (85,9%)	7 (100%)	202 (84,5%)
8. If you were to seek help again, would you make use of this treatment again? *% approval**	4 (100%)	1 (100%)	61 (93,8%)	1 (100%)	22 (84,6%)	36 (72%)	76 (88,4%)	7 (100%)	208 (86,7%)
Client Satisfaction Questionnaire (CSQ-8) : total *% approval**	53,1%	87,5%	94,4%	75%	70,8%	77,5%	69,6%	94,6%	83,3%

*complete or partial approval of item

5.2.2 Patient's perceived usability

We asked patients who had been involved in video conferencing only two questions about their perceived usability: if the service was well integrated, and if they found the service cumbersome to use.

Again, we see a slightly lower rate of female patients (61.1%) and higher rate of employment (62%). Mean age is 48 years. Some data is missing, in part because patients who were not involved directly in VC sessions were not asked these questions.

Table 17 below shows the percentage approval within the specific SUS category, as well as the mean score. When interpreting scores, note the scoring of SUS items (positive or negative). To calculate the score, each participant's score for each question are converted, added together and then multiplied by 2.5 to convert the original scores of 0-40 to 0-100. Though the scores are 0-100, these are not percentages, and should be considered only in terms of their percentile ranking. The majority of patients in all pilots think the services were well integrated. Note that patients who have not been directly involved in the video conferencing sessions, i.e. from Denmark, Norway, Basque Country, Aragon and Galicia, were not asked these questions.

Table 17: Patient's perceived usability

	Region							
	Netherlands	**Germany**	**Wales**	**Badalona**	**Piemonte**	**Treviso**	**Greenland**	**Total**
Subset n	1	65	2	26	46	1	2	143
I found various functions in the videoconferencing service were well integrated *% approval**	1 (100%)	49 (75,4%)	2 (100%)	18 (72%)	41 (89,1%)	1 (100%)	0	112 (78,9%)
I found the videoconferencing service very cumbersome to use and apply *% approval**	1 (100%)	2(3,1%)	2 (100%)	5 (19,2%)	0	1 (100%)	0	11 (7,7%)

* Complete or partial approval of item

5.3 Results – Healthcare professional's perspectives

5.3.1 Healthcare professional's perceived satisfaction

The healthcare professionals' perceived satisfaction was assessed with the Client Satisfaction Questionnaire (CSQ-3), containing items 3, 7, and 8 of the CSQ-8. These items are empirically the most salient items, and are used to provide the maximum amount of efficiency in obtaining data. The demographics are similar to the core set, 60.1% female professionals compared to 59% in the core set, but with more GPs, 60,6% compared to 55.7% in the core set.

Table 18 shows the health care professionals answers to the CSQ-3 questionnaire. The approval scores are from 54.9% to 68.8%. The total approval of all pilots is 61.8%. There were no responses for Greenland.

Table 18: Healthcare professionals' perceived satisfaction

	Region											
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Total**
Subset n	2	1	15	2	8	4	6	69	10	18	38	173
1. To what extent has these services meet your needs in treating patients? *% approval**	0	1 (100%)	11 (68,8%)	2 (100%)	2 (33,3%)	3 (100%)	5 (100%)	58 (86,6%)	3 (30%)	6 (54,5%)	4 (50%)	95 (54,9%)
2. In an overall general sense, how satisfied are you with the services in treating your clients? *% approval**	0	1 (100%)	11 (68,8%)	2 (100%)	7 (87,5%)	3 (100%)	5 (100%)	63 (94%)	6 (60%)	6 (54,5%)	3 (33,3%)	107 (61,8%)
3. If you were to provide CBT treatment, would you use these services again? *% approval**	2 (100%)	1 (100%)	12 (75%)	2(100%)	7 (87,5%)	3 (100%)	5 (100%)	64 (97%)	8 (80%)	9 (81,8%)	6 (66,7%)	119 (68,8%)
Client Satisfaction Questionnaire (CSQ-3): *total % approval**	33%	100%	70,9%	100%	69,4%	100%	100%	92,5%	56,7%	63,6%	50%	61,8%

* Complete or partial approval of item

5.3.2 Healthcare professionals' perceived usability

Healthcare workers' perceived usability was measured with the System Usability Scale (SUS[28]), consisting of ten items to facilitate the evaluation of products such as software and applications. The questionnaire was chosen because it is the gold standard in the field of measuring system usability, it can easily be administered, is realisable in small sample sized, and has been proven to be a valid instrument[29]. The demographics are again close to the core set, with 59.0% female professionals and 59.5% GPs. 57% have ten years of more experience. We do not have data from Denmark here.

Table 19 shows the answers to the System Usability Scale (SUS) from the health care workers. 45.7% says they would like to provide ccVC treatment frequently, but there are large differences between pilot sites. 53.8% thought the treatment was easy to use and understand, but again the differences are large. Only 12.7% think that they would need the support of a technical person to be able to use and provide the ccVC treatment.

Table 19: healthcare professionals' perceived usability

	Region											
	Netherlands	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Greenland**	**Total**
Subset n	1	16	2	8	4	6	69	10	18	38	1	173
1. I think that I would like to provide the ccVC treatment frequently. *% approval**	0	2 (12,5%)	1 (50%)	7 (87,5%)	0	5 (83,3%)	45 (67,2%)	6 (60%)	7 (43,8%)	5 (50%)	1 (100%)	79 (45,7%)
2. I found the ccVC treatment unnecessarily complex. *% approval**	1 (100%)	1 (6,3%)	0	0	1 (100%)	4 (66,7%)	5 (7,5%)	1 (10%)	1 (6,7%)	5 (50%)	0 (0%)	19 (11,0%)
3. I thought the ccVC treatment was easy to use and provide to my clients. *% approval**	0	11 (62,5%)	2 (100%)	2 (25%)	0	5 (83,3%)	56 (83,6%)	6 (60%)	6 (40%)	4 (40%)	1 (100%)	93 (53,8%)
4. I think that I would need the support of a technical person to be able to use and provide the ccVC treatment to my clients. *% approval**	0	5 (31,3%))	0	2 (25%)	0	3 (50%)	1 (1,5%)	0	6 (37,5%)	5 (50%)	0 (0%)	22 (12,7%)

[28] Brooke, J.: SUS: a "quick and dirty" usability scale. In: Usability Evaluation in Industry. London: Taylor and Francis, 1986.
Bangor, A., Kortum, P. T., & Miller, J. T. (2008). An empirical evaluation of the system usability scale. Intl. Journal of Human–Computer Interaction, 24(6), 574-594.

[29] http://www.tandfonline.com/doi/abs/10.1080/10447310802205776

	Region											
	Netherlands	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Greenland**	**Total**
5. I found the various functions in the ccVC intervention were well integrated. *% approval**	0	5 (31,3%)	0	8 (100%)	2 (66,7%)	4 (66,7%)	48 (72,7%)	5 (50%)	6 (42,9%)	4 (44,4%)	0 (0%)	82 (47,3%)
6. I thought there was too much inconsistency in the ccVC intervention. *% approval**	0	3 (18,8%)	0	0	0	4 (66,7%)	4 (6%)	1 (10%)	0	3 (33,3%)	0 (0%)	15 (8,7%)
7. I would imagine that most healthcare professionals would learn to use and provide the ccVC intervention very quickly. *% approval**	0	14 (87,5%)	2 (100%)	6 (75%)	2 (66,7%)	4 (66,7%)	54 (80,6%)	9 (90%)	12 (75%)	7 (63,6%)	1 (100%)	111 (64,1%)
8. I found the ccVC intervention very cumbersome to use and provide to my clients. *% approval**	1 (100%)	3 (18,8%)	0	0	0	5 (83,3%)	3 (4,5%)	2 (20%)	2 (12,5%)	4 (44,4%)	0 (0%)	20 (11,6%)
9. I felt very confident using and providing the ccVC intervention to my clients. *% approval**	0	11 (68,8%)	2 (100%)	6 (75%)	2 (66,7%)	5 (83,3%)	58 (86,6%)	3 (30%)	8 (53,3%)	3 (37,5%)	1 (100%)	99 (57,2%)
10. I needed to learn a lot of things before I could get going with using and providing the ccVC intervention to my clients. *% approval**	0	0	0	0	0	0	2 (3%)	1 (10%)	3 (20%)	5 (50%)	1 (100%)	12 (6,9%)

* Complete or partial approval of item

5.3.3 Perceived acceptability of MasterMind services in routine practice based on qualitative data (focus group interviews)

Besides access to service and completion numbers and the reasons presented above, all trial sites engaged in obtaining a rich professional profile of those for whom the ccVC service might be acceptable. This was done through a total of five focus group discussions with healthcare professionals reflecting on the patients they see in their daily practice. From these focus groups, it appeared that various factors are relevant:

- appropriateness of the service in alleviating the needs of the patients;
- the decision to engage with the ccVC service; and
- satisfaction and usability of the services in routine practice.

In summary, the focus groups indicated the following factors as relevant:

- **Appropriateness of the service:** Appropriateness of the ccVC service relates to the extent to which the professional perceive the service to be fit for purpose in addressing their professional needs.
  - There is a high workload in specialised mental healthcare, and the VC system can act as a filter.
  - Use of video conference improves the communication between various professionals.
  - Participants indicated that the doctor-patient relationship needs to change for this system to apply on a larger scale.
  - Changes in work flow and organisation are required.
  - Better diary management is required, as it remains difficult to schedule online appointments with patients and various professionals during office hours. According to GPs, the face-to-face visit is better, quicker and easier, as they lack time during their office practice and they are scarcely available for new services such as ccVC.
  - Primary care professionals reported to be careful with VC services as they could be used by patients in an improper way to discuss their diseases, while the patients' situation requires a face-to-face visit for optimal care. As such, ccVC must be limited to a specific objective and not seen as general purpose.
- **Engaging in the service:** Engaging in treatment relates to the decision of a professional to deliver the ccVC facilitated mental health service.
  - Professionals need to make an investment in time to make the new services become a normal part of their practice. Currently, professionals spend all their time on clinical work, and have little time to get acquainted with new services.
  - The systems need to be easy to use and reliable, with standardised procedures.
  - Dedicated support and training is required to facilitate engagement of professionals. A quick start manual may also be useful.
  - For one-to-one communication between professionals, it is not necessary to use VC.
  - The technologies used up until now were considered unsatisfactory in terms of usability. This limitation was clearly highlighted by making comparisons with other communication tools such as WhatsApp or Skype.

- **Satisfaction and usability:** This relate to aspects such as the meaning of delivering the services in routine practice in terms of the extent to which the ccVC services are usable and satisfying expectations, roles, and responsibilities.
  - Patient satisfaction is a key factor in determining acceptability.
  - For professionals, user-friendliness was named as an important factor in determining the acceptability of the service.
  - It is very important that the quality of the sound and the image are high.
  - Professionals do see potential in ccVC, but they are not completely satisfied and convinced that this service is better than traditional face-to-face visits because of the technical challenges, including the ICT literacy of the professionals and patients themselves.
  - Regarding the treatment processes and care pathways, VC is seen by professionals as usable and satisfactory. It improves communication between primary care professionals and specialists.
  - VC service is useful for shared decision making, to guide patients' needs, and to send a uniform message to the patient that enhances the confidence in the care they receive.
  - The use of ccVC can also enhance efficiency. For example, in those sites where professionals provide sessions in different geographic areas, travel time and costs can be saved.
  - The ccVC service can be used for maintenance sessions, to continue to monitor patients' condition over time, and possibly prevent relapse.
  - The ccVC service can be used effectively to empower patients by changing patients' perspective on their health and wellbeing. Professionals reported that they see that patients experience an increased level of overall wellness when commencing the ccVC service.

Appendix A.3 contains more details on the findings from the focus group interviews, which substantiate the factors described above.

5.4 Summary and conclusions

Overall, patients report a high perceived satisfaction with ccVC, and that the service is well integrated. The majority of patients report a high quality of treatment, and that they have received the kind of treatment they wanted. A great majority of the patients would recommend the service to others, and are very satisfied with the help provided.

The majority of the health professionals are satisfied with the services and would use it again. 73% of professionals report that the service meets their needs in the treatment of patients. This demonstrates that for the majority of the patients VC is a suitable solution. It is always important to meet the individual needs of the patients, and for patients where VC in not useful, it is important to have other solutions. In treatment of depression, it is important to have a variety of solutions to ensure personalised treatment; this project demonstrates that VC can be a useful solution.

In terms of the appropriateness of the ccVC service, focus groups primarily reported on factors that can be categorised under treatment delivery processes. An important factor that emerged from the focus groups was that VC services can act as a filter for specialised mental health services, and can include additional information about how patients are evolving

through the primary care teams. In addition, the professionals reported that VC has the potential to improve communication between the various professionals involved.

The decision-making process of professionals to engage in the ccVC service and apply it in their routine care provision focused on the expectations and actual needs of professionals in the field. In terms of needs, the focus groups clearly indicated that time, or rather lack it, was an important factor in determining whether to engage. In terms of support, the professionals indicated that dedicated support is an important prerequisite for a professional to engage with the system. It was also mentioned that quick-start materials, training, and gaining experience with the systems, are important factors that can contribute to engaging in the ccVC service. Technological reliability and usability of the service were considered of primary importance for professionals to engage and remain engaged in the services. Some professionals reported that the technologies used up until now were considered unsatisfactory in terms of usability and reliability.

Regarding satisfaction and usability of the service, focus groups reported that the technology should be more robust and mature to be usable. In addition, it was argued that it is very important that the quality of the sound and the image are high. Patient satisfaction is regarded as a key factor for professionals to be satisfied with the systems themselves. Satisfaction and usability were also felt to be dependent on factors related to the treatment pathways and processes. Here, participants indicated that VC can significantly enhance communication and collaboration between professionals, facilitating shared decision-making and efficiency. However, one should be aware of practical arrangements such as scheduling appointments. In terms of service delivery outcome, professionals indicated the ccVC service to be useful in empowering patients and making them more aware of their mental health status and wellbeing.

6. Domain 5: Economic aspects

6.1 Introduction

The analysis of the economic aspect of the implementation of the services is based on responses to the questionnaires preceding the semi-structured interviews with healthcare organisations. These questionnaires include a series of questions regarding implementation and maintenance costs. The semi-structured interviews collected relevant views in terms of potential savings and a potential business case for initiating and retaining the interventions according to directors or owners of the healthcare organisations participating in MasterMind. These are also summarised in this section.

6.2 Results

6.2.1 Characteristics of mental healthcare organisations (subset)

Table 20 provides a summary of the characteristics of the healthcare organisations in MasterMind.

Table 20: Characteristics of mental healthcare organisations

	Region											
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque country**	**Wales**	**Aragón**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Total**
Sample: *n*	2	2	1	1	2	3	2	2	2	1	1	19
Age (year of establishment): *mean (SD)*	2011 (5)	1989 (0)	2008 (0)	1948 (0)	1983 (0)	1948 (0)	1989 (0)	1932 (0)	1990 (0)	2008 (0)	2000 (0)	1984 (28)
Number of units / departments: mean (SD)	7 (4)	17 (0)	14 (0)	1 (0)	49 (2)	7 (5)	17 (0)	30 (0)	9 (0)	14 (0)	2 (0)	146 (389)
Number of FTE employed: *mean (SD)*	712 (949)	900 (0)	3000 (0)	95 (0)	3679 (1869)	958 (747)	900 (0)	1000 (0)	36000 (0)	3922 (0)	200 (0)	5077 (10976)

	Region											
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque country**	**Wales**	**Aragón**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Total**
Turnover: ***count (proportion)***												
Equal or less than 2 million €	1 (0.5)	0	0	0	0	0	0	0	0	0	0	1 (0.05)
Between 2 and 10 million €	0	0	0	0	0	0	0	0	0	0	0	0
Between 10 and 50 million €	0	0	1 (1)	1 (1)	0	1 (0.33)	0	0	0	0	1 (1)	4 (0.21)
Over 50 million €	1 (0.5)	2 (1)	0	0	2 (1)	2 (0.67)	2 (1)	2 (1)	2 (1)	1 (1)	0 (0)	14 (0.74)
Waiting time: ***count (proportion)***												
Less than a week	0	0	0	0	2 (1)	0	0	2 (1)	2 (1)	0	0	6 (0.33)
Between 1 and 4 weeks	2 (1)	0	0	0	0	2 (0.67)	0	0	0	1 (1)	1 (1)	6 (0.33)
1 and 2 months	0	2 (1)	0 (0)	1 (1)	0	0	2 (1)	0	0	0	0	4 (0.22)
Between 2 and 6 months	0	0	1 (1)	0	0	0	0	0	0	0	0	1 (0.06)
More than 6 months	0	0	0	0	0	1 (0.33)	0	0	0	0	0	1 (0.06)

6.2.2 Investments

Table 21 below presents the initial investment in materials, ICT infrastructure and staff training required to implement the services in each region.

Table 21: Investments

	Region											
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque country**	**Wales**	**Aragón**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Total**
Investments in materials and ICT infrastructure ***Euro mean (SD)***	600.000 (848528)	35.000 (49497)	0	0	0	0	35.000 (49497)	24.000 (0)	38.386 (43254)	21500 (0)	50.000 (0)	100.304 (278.181)
Incidental efforts (time) needed of support staff to implement the services. ***FTE mean (SD)***	0	0	99 (0)	0	0	0	0	1 (0)	5 (4)	3 (0)	2 (0)	1 (2)
Initial training and supervision: ***count (proportion)***												
Yes	1 (1)	1 (1)	1 (1)	1 (1)	1 (1)	1 (0.5)	2 (1)	2 (1)	2 (1)	1 (1)	1 (1)	14 (0.93)
No	0	0	0	0	0	1 (0.5)	0	0	0	0	0	1 (0)
Training type: ***count (proportion)***												
Technical aspects and how to use of the platform	0	2 (1)	0	0	0	0	1 (0.5)	0	1 (0.5)	0	0	4 (0.22)
Therapeutic elements that are included in the platform (e.g. CBT)	0	0	0	0	0	0	0	0	0	0	0	0
Technical aspects and how to use the platform, and therapeutic elements that are included in the platform (e.g. CBT)	2 (1)	0	1 (1)	1 (1)	2 (1)	2 (1)	1 (0.5)	2 (1)	1 (0.5)	1 (1)	1 (1)	14 (0.78)
Other aspects related to the service.	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

6.2.3 Recurring operational costs

The recurring operational costs, estimated by the direct and indirect costs per session are summarised in Table 22.

Table 22: Recurring operational costs

	Region								
	Netherlands	Germany	Norway	Aragón	Badalona	Galicia	Piemonte	Treviso	Total
Direct costs of for one ccVC session. *Euro mean (SD)*	-	70 (0)	188 (0)	20 (0)	95 (7)	374 (0)	50 (0)	50 (0)	67 (104)
Indirect costs spend on overheads for one cCBT/ccVC session. *Euro mean (SD)*	30 (0)	30 (0)	7 (0)	30 (0)	33 (4)	56 (0)	11 (0)	15 (0)	21 (19)

6.2.4 Reimbursement modalities

We present the reimbursement modalities reported by each organisation in each region in Table 23.

Table 23: Reimbursement modalities

	Region											
	Denmark	Netherlands	Germany	Norway	Basque country	Wales	Aragón	Badalona	Galicia	Piemonte	Treviso	Total
Main sources of reimbursement. Type count (proportion)												
Public healthcare system (PHS) (i.e. Ministry of Health)	2 (1)	-	-	1 (1)	-	2 (1)	-	-	1 (1)	-	-	9 (0.43)
Health care insurers (HCI)	-	1 (1)	1 (1)	-	-	-	-	-	-	-	-	5 (0.24)
Patients (PAT)	-	-	-	-	-	-	-	-	-	-	-	0
Other	-	-	-	-	-	-	-	-	-	-	-	1 (0.05)
The service is not reimbursed structurally	-	-	-	-	-	-	2 (1)	2 (1)	-	1 (1)	1 (1)	6 (0.29)
Unknown	-	-	-	-	-	-	-	-	-	-	-	-
Distribution of sources per reimburse. Percentages per type	100% (PHS)	100 % (HCI)	100% (HCI)	80%/20% PHS/PAT	-	100% (PHS)	-	-	-	-	-	-

6.2.5 Cost savings (description)

This topic relates to the cost of the implementation. Resource utilisation was reported by the interviews on theme 1: Factors hindering and fostering implementation. Nevertheless, not all interviews addressed this issue. Main topics emerging from the interviews included:

- An overall perception of lack of resources in mental health services.
- The need of more economic evaluation.
- Some participants stated that they were unable to observe any savings.
- Time was the most mentioned resource needed. Time was needed both for patients and for eHealth learning and updates.
- Technological resources and infrastructure were also needed. In some cases practical issues such as room availability and Wi-Fi were an obstacle to implementation.

Appendix A.4.1 contains more details on the findings from the focus group interviews, which substantiate the factors described above.

6.2.6 Budget Impact Analyses

Table 24 below summarises the main sources of costs identified in the questionnaires preceding the interviews. Savings could not be quantified in monetary terms, as this was not included in the questionnaire. However, the views in terms of potential savings and a potential business case for initiating and retaining the interventions are evaluated with the information provided by the semi-structure interviews, as detailed in sections 6.2.5 and 6.2.7.

Table 24: Budget Impact Analyses

	Region											
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque country**	**Wales**	**Aragón**	**Badalona**	**Galicia**	**Piemonte**	**Treviso**	**Total**
Investments in materials and ICT infrastructure. ***Euro mean (SD)***	600.000 (848.528)	35.000 (49497)	0	0	0	0	0	24.000 (0)	38.386 (43.254)	21.500 (0)	50.000 (0)	768.886 (278.181)
Incidental efforts (time) needed of support staff to implement the services. ***FTE mean (SD)***	0	0	99 (0)	0	0	0	0	1 (0)	5 (4)	3 (0)	2 (0)	1(2)
Direct costs of for one ccVC session. ***Euro mean (SD)***	-	-	70 (0)	188 (0)	0	0	20 (0)	95 (7)	374 (0)	50 (0)	50 (0)	67 (104)

6.2.7 Economic sustainability of services in routine practice

Economic sustainability of services in routine practice relates to two topics that were collected through interviews:

- Perspective on maintaining the services in place.
- Business case.

In summary, the focus groups indicated the following factors as relevant:

- **Maintaining the services in place:**
  - The most mentioned reason for maintaining the services was that they could be efficient and do not need many additional resources.
  - The expectation was they would be able to treat more patients with the same resources.
  - Services could cover a larger area, providing more accessible treatment
  - Some also stated that the services are effective and able to treat previously untreated patients.
  - Another reason mentioned for maintaining the services was that they can contribute in improving the public image in relation to mental health services regarding effective and efficient use of resources, and reception of innovative and quality services

  Appendix A.4.2 contains more details on these findings from the focus group interviews, which substantiate these factors.

- **Business case:**
  - Participants mentioned some economic reasons that could build a business case. The interventions had not been expensive, seemed efficient, and could be absorbed into the daily work of the institution.
  - The project was still in evaluation, and it is not clear that services were going to be maintained in the long run. Especially as the sites did not have funding strategies in place yet.
  - In one site, participants saw no possibility of building a business case.

  Appendix A.4.3 contains more details on these findings from the focus group interviews, which substantiate these factors.

6.3 Summary and conclusions

There is a wide variation in the responses regarding the economic aspects of the implementation of the services. Initial investment in material and ICT infrastructure varied from 0€ to 600,000€. Most regions required support staff to implement the services, with a mean FTE of one person. Almost every region required initial training and supervision for staff, which in most cases involved technical aspects on how to use the platform and on the therapeutic elements that are included in the platform. The direct cost for one session is not provided in a number of regions; among those that provided this information, the cost varied from 20€ to 374€ for ccVC. With respect to the modality of reimbursement, nine organisations reported public health system reimbursement, five were reimbursed by

healthcare insurers, six reported that the service is not reimbursed structurally, and one recorded “other” type of reimbursement.

Regarding qualitative analysis, the economic aspects of the implementation were analysed taking into account the reports of interviews from Aragon, Badalona, Basque Country, Piemonte, Treviso, Wales, Scotland, Denmark, the Netherlands and Germany. Data from Norway, Galicia and Greenland were not available for analysis. The questionnaires were also not available for Greenland.

With the available data, it has not been possible to analyse separately the perceptions of the economics aspects of ccVC and cCBT. Most of the reports from the interviews did not separate responses for each intervention.

Qualitative reports were highly variable in the quantity and quality of the included information. In this sense, the number of quotations may not be representative of the interest in the topics. Both direct quotations from the interviews, and summary statements were used as primary data, and are reproduced in this analysis in italics.

7. Domain 6: Organisational aspects

7.1 Introduction

Domain 6 aims to provide insights into organisational aspects and perspectives in implementing and up-scaling the cCBT and ccVC services into routine practice. Variables include quantitative information on the organisation profile (as part of domain 1) and estimates of case load, and qualitative information retrieved via focus group discussions and semi-structured interviews on issues of leadership engagement (in terms of commitment and implementation strategies), resources (time and savings), perceived factors for implementation success, and innovation climate (including information on knowledge and beliefs about the services, self-efficacy in using the services, individual state of change, identification with the organisation, support and awards, and relative priority). Findings are triangulated between both quantitative data and qualitative data, and between healthcare professionals and organisational perspectives (organisations).

The analyses enable drawing out answers to these research questions:

- To identify barriers and facilitators that influences the implementation of cCBT and ccVC to treat depression in routine practice.
- To assess the costs associated with implementation and large scale uptake of cCBT and ccVC to treat depression in routine practice.
- To assess the perceived satisfaction and perceived usability with cCBT and ccVC.
- To assess the transferability of implementation and up-scaling of cCBT and ccVC into routine practice in different care contexts.

Findings from domain 6, together with domains 1-5 and 7, provide insights into the acceptability and appropriateness from the perspective of healthcare professionals, and the sustainability of the services in routine practice as seen from the viewpoint of the organisations.

7.2 Results – Healthcare professionals

7.2.1 Leadership engagement

The dimension "Leadership engagement" includes factors on the organisation's decision making process, the engagement of supervisors in the use of the implemented services, the presence of an implementation strategy, staff availability and available resources. The results are presented in Table 25.

We had answers from 78 healthcare professionals. Of these, 62.8% are women. 33% are GPs, 30.7% are licensed psychologists, psychologists in training or psychologists with basic training, while 16.7% are psychiatrists. The majority (61%) have more than 10 years of experience. We are missing data from Galicia and Greenland.

Most users said that the decision making process was participatory (60% of the sample). 38.7% said it was top-down, and only 1.3% said bottom-up. Leadership engagement was fairly high, with 55.9% agreeing or strongly agreeing that supervisors are highly engaged in using the ccVC services. The approval for the implementation strategy is a bit lower, with 48.8% ageing or strongly agreeing that a visible and recognisable strategy is used to implement the services. 57.2% agree or strongly agree that enough qualified staff are available to provide the services. Only 41% agree or strongly agree that an adequate number of resources are made available to offer the services.

Table 25: Leadership engagement

	Region										
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Piemonte**	**Treviso**	**Total**
Subset n	3	1	14	1	7	4	6	12	17	13	78
Decision making process (How would you characterise the decision making process in your organisation?) ***categorical; mean (SD)***											
top-down	3 (100%)	0	10 (71,4%)	1 (100%)	4 (57,1%)	2 (66,7%)	1 (16,7%)	3 (27,3%)	3 (17,6%)	2 (15,4%)	29 (38,7%)
bottom-up	0	0	1 (7,1%)	0	0	0	0	0	0	0	1 (1,3%)
participatory	0	0	3 (21,4%)	0 (0%)	3 (42,9%)	1 (33,3%)	5 (83,3%)	8 (72,7%)	14 (82,4%)	11 (84,6%)	45 (60%)

	Region										
	Denmark	Netherlands	Germany	Norway	Basque Country	Wales	Arágon	Badalona	Piemonte	Treviso	Total
Leadership engagement (Supervisors are highly engaged in using the cCBT and/or ccVC services in the clinical practice): *categorical; mean (SD)*											
I strongly disagree	0	0	1 (7,1%)	0	0	1 (25%)	0	1 (9,1%)	0	0	3 (3,9%)
I disagree	1 (33,3%)	1 (100%)	4 (28,6%)	0	0	1 (25%)	1 (16,7%)	0	2 (11,8%)	2 (15,4%)	12 (15,6%)
I neither disagree nor agree	0	0	6 (42,9%)	1 (100%)	2 (28,6%)	0	1 (16,7%)	2 (18,2%)	5 (29,4%)	2 (15,4%)	19 (24,7%)
I agree	1 (33,3%)	0	2 (14,3%)	0	3 (42,9%)	2 (50%)	1 (16,7%)	3 (27,3%)	7 (41,2%)	8 (61,5%)	27 (35,1%)
I strongly agree	1 (33,3%)	0	1 (7,1%)	0	2 (28,6%)	0	3 (50%)	5 (45,5%)	3 (17,6%)	1 (7,7%)	16 (20,8%)
Implementation strategy (A visible and recognisable strategy is used for implementing the services) *categorical; mean (SD)*											
I strongly disagree	0	1 (100%)	1 (7,1%)	0	1 (14,3%)	1 (25%)	0	0	0	0	4 (5,1%)
I disagree	1 (33,3%)	0	5 (35,7%)	0	2 (28,6%)	1 (25%)	1 (16,7%)	1 (8,3%)	2 (11,8%)	1 (7,7%)	14 (17,9%)
I neither disagree nor agree	1 (33,3%)	0	4 (28,6%)	0	2 (28,6%)	0	1 (16,7%)	1 (8,3%)	5 (29,4%)	8 (61,5%)	22 (28,2%)
I agree	0	0	3 (21,4%)	1 (100%)	1 (14,3%)	2 (50%)	2 (33,3%)	8 (66,7%)	9 (52,9%)	4 (30,8%)	30 (38,5%)
I strongly agree	1 (33,3%)	0	1 (7,1%)	0	1 (14,3%)	0	2 (33,3%)	2 (16,7%)	1 (5,9%)	0 (0%)	8 (10,3%)
Staff availability (Enough qualified staff is available to provide the services) *categorical; mean (SD)*											
I strongly disagree	0	0	0	0	0	1 (25%)	0	0	0	0	1 (1,3%)
I disagree	2 (66,7%)	0	2 (14,3%)	1 (100%)	0 (0%)	1 (25%)	0	0	3 (17,6%)	2 (15,4%)	11 (14,3%)
I neither disagree nor agree	0	0	1 (7,1%)	0	1 (16,7%)	0	1 (16,7%)	2 (16,7%)	5 (29,4%)	11 (84,6%)	21 (27,3%)
I agree	1 (33,3%)	1 (100%)	8 (57,1%)	0	3 (50%)	2 (50%)	1 (16,7%)	9 (75%)	7 (41,2%)	0	32 (41,6%)
I strongly agree	0	0	3 (21,4%)	0	2 (33,3%)	0	4 (66,7%)	1 (8,3%)	2 (11,8%)	0	12 (15,6%)
An adequate number of resources are made available to offer the services. *categorical; mean (SD)*											
I strongly disagree	0	0	0	0	1 (14,3%)	1 (25%)	0	0	1 (5,9%)	0	3 (3,8%)
I disagree	1 (33,3%)	0 (0%)	3 (21,4%)	1 (100%)	2 (28,6%)	1 (25%)	2 (33,3%)	1 (8,3%)	5 (29,4%)	7 (53,8%)	23 (29,5%)
I neither disagree nor agree	1 (33,3%)	1 (100%)	5 (35,7%)	0	0	0	2 (33,3%)	2 (16,7%)	3 (17,6%)	6 (46,2%)	20 (25,6%)
I agree	1 (33,3%)	0	5 (35,7%)	0 (0%)	2 (28,6%)	2 (50%)	1 (16,7%)	8 (66,7%)	7 (41,2%)	0	26 (33,3%)
I strongly agree	0	0	1 (7,1%)	0 (0%)	2 (28,6%)	0	1 (16,7%)	1 (8,3%)	1 (5,9%)	0	6 (7,7%)

7.2.2 Innovation climate

Table 26 shows the results of the questionnaire that asked about the healthcare professionals' innovation climate. The majority of healthcare workers agree or strongly agree that they are committed, loyal and confident about using the services, at 83%, 82% and 73% respectively. 32% say they are testing use of ccVC in their daily routine, while 29% have integrated ccVC into their daily practice. The healthcare professionals agree or strongly agree that they feel supported, recognised and appreciated, 66%, 57% and 51% respectively. 41% agree or strongly agree that they give high priority to implementing the ccVC services in their daily work. This relatively low number might be an indication of the high work pressure of healthcare professionals.

Table 26: Innovation climate

	Region										
	Denmark	**Netherlands**	**Germany**	**Norway**	**Basque Country**	**Wales**	**Arágon**	**Badalona**	**Piemonte**	**Treviso**	**Total**
Subset n	3	1	14	1	7	4	6	12	17	13	78
Commitment (I am committed to the goals of the organisation I work for) ***categorical; mean (SD)***											
I strongly disagree	0	0	0	0	0	1 (25%)	0 (0%)	0	0	0	1 (1,4%)
I disagree	0	0	0	0	0	0	0	0	1 (6,7%)	0	1 (1,4%)
I neither disagree nor agree	0	0	5 (35,7%)	0	0	0	0	1 (9,1%)	2 (13,3%)	2 (16,7%)	10 (14,1%)
I agree	0	1 (100%)	8 (57,1%)	1 (100%)	3 (42,9%)	2 (50%)	4 (66,7%)	6 (54,5%)	12 (80%)	9 (75%)	46 (64,8%)
I strongly agree	0	0	1 (7,1%)	0	4 (57,1%)	1 (25%)	2 (33,3%)	4 (36,4%)	0 (0%)	1 (8,3%)	13 (18,3%)
Loyalty (I see myself as being loyal to the organisation I work for) categorical; mean (SD)											
I strongly disagree	0	0	0	0	0	1 (25%)	0	0	0	0	1 (1,3%)
I disagree	1 (33,3%)	0	0	0	0	0	0	0	0	1 (8,3%)	2 (2,7%)
I neither disagree nor agree	0	0	3 (21,4%)	0	1 (14,3%)	0	0	1 (9,1%)	2 (12,5%)	4 (33,3%)	11 (14,7%)
I agree	1 (33,3%)	1 (100%)	10 (71,4%)	1 (100%)	5 (71,4%)	3 (75%)	4 (66,7%)	5 (45,5%)	12 (75%)	7 (58,3%)	49 (65,3%)
I strongly agree	1 (33,3%)	0	1 (7,1%)	0	1 (14,3%)	0	2 (33,3%)	5 (45,5%)	2 (12,5%)	0 (0%)	12 (16%)
Confidence (I feel confident in my ability to use the cCBT and ccVC services in treating clients) ***categorical; mean (SD)***											
I strongly disagree	0	0	0	0	0	1 (25%)	0	0	0	2 (16,7%)	3 (4,2%)
I disagree	2 (66,7%)	0	0	0	1 (14,3%)	0	0	0	0	0	3 (4,2%)
I neither disagree nor agree	1 (33,3%)	0	2 (14,3%)	0	0	1 (25%)	1 (20%)	0	4 (25%)	5 (41,7%)	14 (19,4%)
I agree	0	1 (100%)	10 (71,4%)	0	5 (71,4%)	1 (25%)	3 (60%)	6 (66,7%)	10 (62,5%)	4 (33,3%)	40 (55,6%)
I strongly agree	0	0	2 (14,3%)	1 (100%)	1 (14,3%)	1 (25%)	1 (20%)	3 (33,3%)	2 (12,5%)	1 (8,3%)	12 (16,7%)

	Region										
	Denmark	Netherlands	Germany	Norway	Basque Country	Wales	Arágon	Badalona	Piemonte	Treviso	Total
State of change (on the continuum of change, in where are you currently in using and offering cCBT and/or ccVC services regularly to your clients) ***categorical; mean (SD)***											
I am currently orienting myself in using cCBT or ccVC	2 (66,7%)	0	1 (7,1%)	0	0	1 (25%)	0	0	2 (14,3%)	2 (15,4%)	8 (11,1%)
I have some insight and understand how I can use cCBT or ccVC	0	0	1 (7,1%)	0	3 (42,9%)	2 (50%)	0	2 (22,2%)	4 (28,6%)	3 (23,1%)	15 (20,8%)
I have decided to change my routine and start using cCBT or ccVC	0	0	0 (0%)	0	0	0	0	0	2 (14,3%)	3 (23,1%)	5 (6,9%)
I am currently testing usage of cCBT or ccVC in my daily routine	1 (33,3%)	0	2 (14,3%)	0	3 (42,9%)	1 (25%)	5 (83,3%)	4 (44,4%)	4 (28,6%)	3 (23,1%)	23 (31,9%)
I have integrated cCBT or ccVC in my routine in treating clients	0	1 (100%)	10 (71,4%)	1 (100%)	1 (14,3%)	0 (0%)	1 (16,7%)	3 (33,3%)	2 (14,3%)	2 (15,4%)	21 (29,2%)
Support (I feel supported by my organisation in applying and using new ways of working such as cCBT and/or ccVC in my daily practice) ***categorical; mean (SD)***											
I strongly disagree	0	0	0	0	0	1 (25%)	1 (16,7%)	0	0	0	2 (2,7%)
I disagree	0	0	0	0	1 (14,3%)	1 (25%)	1 (16,7%)	0	1 (5,9%)	1 (8,3%)	5 (6,8%)
I neither disagree nor agree	0	0	5 (35,7%)	0	4 (57,1%)	1 (25%)	1 (16,7%)	0	4 (23,5%)	3 (25%)	18 (24,3%)
I agree	2 (66,7%)	0	7 (50%)	1 (100%)	1 (14,3%)	1 (25%)	1 (16,7%)	9 (100%)	10 (58,8%)	8 (66,7%)	40 (54,1%)
I strongly agree	1 (33,3%)	1 (100%)	2 (14,3%)	0	1 (14,3%)	0	2 (33,3%)	0	2 (11,8%)	0	9 (12,2%)
Recognition (I feel recognised by the organisation I work for when incorporating a new intervention in my daily practice) ***categorical***											
I strongly disagree	0	0	1 (7,1%)	0	0	0	0	0	0	1 (7,7%)	2 (2,6%)
I disagree	0	0	1 (7,1%)	0	1 (14,3%)	2 (50%)	2 (33,3%)	0	3 (17,6%)	2 (15,4%)	11 (14,5%)
I neither disagree nor agree	0	0	5 (35,7%)	0	4 (57,1%)	0	0	4 (40%)	4 (23,5%)	2 (15,4%)	19 (25%)
I agree	3 (100%)	1 (100%)	6 (42,9%)	1 (100%)	1 (14,3%)	2 (50%)	3 (50%)	6 (60%)	9 (52,9%)	8 (61,5%)	40 (52,6%)
I strongly agree	0	0	1 (7,1%)	0	1 (14,3%)	0	1 (16,7%)	0	1 (5,9%)	0	4 (5,3%)
Appreciation (I feel appreciated by the organisation I work for when incorporating a new intervention in my daily practice) ***categorical; mean (SD)***											
I strongly disagree	0	0	1 (7,1%)	0	0	0	0	0	0	1 (7,7%)	2 (2,8%)
I disagree	0	0	2 (14,3%)	0	1 (14,3%)	1 (25%)	2 (33,3%)	0	1 (5,9%)	2 (15,4%)	9 (12,7%)
I neither disagree nor agree	1 (33,3%)	0	7 (50%)	1 (100%)	3 (42,9%)	1 (25%)	0	3 (60%)	5 (29,4%)	3 (23,1%)	24 (33,8%)
I agree	2 (66,7%)	0	3 (21,4%)	0	2 (28,6%)	2 (50%)	3 (50%)	1 (20%)	10 (58,8%)	7 (53,8%)	30 (42,3%)
I strongly agree	0	1 (100%)	1 (7,1%)	0	1 (14,3%)	0	1 (16,7%)	1 (20%)	1 (5,9%)	0	6 (8,5%)

	Region										
	Denmark	Netherlands	Germany	Norway	Basque Country	Wales	Arágon	Badalona	Piemonte	Treviso	Total
Enthusiasm (I am enthusiastic about using cCBT in treating clients) ***categorical; mean (SD)***											
I strongly disagree	0	0	0	0	0	0	0	0	0	0	0
I disagree	2 (66,7%)	0	0	0	2 (28,6%)	1 (25%)	0	1 (11,1%)	1 (6,3%)	0	7 (9,5%)
I neither disagree nor agree	0	0 (0%)	3 (21,4%)	0	2 (28,6%)	0	1 (16,7%)	0 (0%)	6 (37,5%)	6 (46,2%)	18 (24,3%)
I agree	1 (33,3%)	0 (0%)	8 (57,1%)	0	1 (14,3%)	3 (75%)	2 (33,3%)	8 (88,9%)	8 (50%)	6 (46,2%)	37 (50%)
I strongly agree	0	1 (100%)	3 (21,4%)	1 (100%)	2 (28,6%)	0	3 (50%)	0	1 (6,3%)	1 (7,7%)	12 (16,2%)
Priority (I give high priority to implementing the cCBT and/or ccVC services in my daily work) ***categorical; mean (SD)***											
I strongly disagree	0	0	0	0	0	0	0	0	1 (6,3%)	2 (15,4%)	3 (4,1%)
I disagree	2 (66,7%)	0	2 (14,3%)	0	4 (57,1%)	0	1 (16,7%)	0	4 (25%)	1 (7,7%)	14 (18,9%)
I neither disagree nor agree	1 (33,3%)	0	2 (14,3%)	0	0	2 (50%)	3 (50%)	4 (44,4%)	7 (43,8%)	8 (61,5%)	27 (36,5%)
I agree	0	1 (100%)	5 (35,7%)	0	2 (28,6%)	2 (50%)	1 (16,7%)	5 (55,6%)	4 (25%)	2 (15,4%)	22 (29,7%)
I strongly agree	0	0	5 (35,7%)	1 (100%)	1 (14,3%)	0	1 (16,7%)	0	0	0	8 (10,8%)

7.2.3 Perspective on implementation

The data here is based on focus group interviews with healthcare professionals. In summary the results are:

- Professionals in the focus groups acknowledged the value of ccVC, and indicated that it should be included in routine practice. According to the professionals, implementation is feasible, and does not require much investment.
- Professionals discussed the importance of support from management, indicating that it should not be an isolated and temporary activity. It important to have clear leadership to ensure the innovation is implemented and maintained.
- The main problem is the lack of time and motivation for professionals to try out these new tools, and to implement them in their treatments.
- In using the ccVC services, professionals active in primary care indicated to be satisfied with the service. Use in practice most likely will increase, especially when the services reduce case-load.
- The technical requirements to effectively use the ccVC service can be a barrier for patients. In addition, the patients' mental state can prevent engaging in new things such as ccVC. This needs to be discussed at referral. Technical requirements also include the availability and adequacy of the infrastructure on which the services are running, such as internet, PCs, cameras, etc.
- Professionals often do not understand the full potential of the system. They indicated not to be knowledgeable enough to use the programme and to guide the patients in using ccVC services.

Appendix A.5.1 contains details of the findings that substantiate the factors with respect to perspective on implementation.

7.3 Results – healthcare organisations

7.3.1 Leadership engagement

The data is based on semi-structured interviews with representatives of the organisations that implemented the ccVC services in routine practice. The representatives that were interviewed had a certain level of decision making power in the organisation and/or a leading role in the implementation processes involved. In summary, the results are:

- Interviewees reported that from their perspective, the leadership and management are fully engaged with the use of these services in clinical practice.
- This commitment was energised in various manners, including providing resources for training and information sessions for professionals, and time in gaining support. Interviewees indicated that it proved to be a difficult task and heavily depended on individuals.
- The decision processes were mostly top-down. In some cases, it was characterised as participatory to ensure acceptance and adoption of the choices made about the implementation of the ccVC service.

- Interviewees did not explicitly report about the existence of strategies to implement the ccVC services in routine practice. One interviewee indicated that a transparent implementation strategy has not been visible.
- Organisations indicated working towards technological platforms with a universal approach that can be deployed in various settings (i.e. primary care, specialised care). Implementation of ccVC services fitted into longer-term goals to provide collaborative care between Primary Care and the Mental Health Care Units.

Appendix A.5.2 contains details of the findings that substantiate the factors with respect to leadership engagement.

7.3.2 Perspective on implementation

Participants in the semi-structured interviews identified various factors that should be taken into account when implementing ccVC in routine practice. The data is based on semi-structured interviews with representatives of the organisations that implemented the ccVC services in routine practice. In summary, the results are:

- One of the reasons for implementing ccVC mentioned was to enable interdisciplinary consultations. It was seen as an opportunity to test the organisational change management needed to implement them efficiently. As a result, it was seen that the implementation of ccVC can facilitate new opportunities in mental healthcare.
- Some interviewees indicated that in general the implementation of ccVC is a success when the service is offered as standard for certain clinical populations. Other interviewees did not report an explicit expected outcome to regard the work to implement ccVC in routine practice as a success.
- Regarding facilitating factors in terms of organisational strategies and priorities, the commitment to a certain higher level goal such as collaborative care, quality improvement, or a better understanding of disease, are important drivers for prioritising implementation of the ccVC services.
- Regarding the implementation, the technology and guidance in use are important factors to take into account. Often, issues with technology lead to disapproval by professionals very quickly.
- The evidence base, clinical guidance, and professional development are also factors that have a role in the implementation of ccVC services in routine care. According to the interviewees, healthcare professionals seem to be more supportive of the project when it is presented well, and it is explained that evidence shows that patients get a good benefit from ccVC, and demand it.
- Clear guidelines on how to carry out treatment with ccVC can be conducive to the implementation, so that with this 'tool' nurses may perceive this as normal treatment. On the other hand, too many challenges in learning a new workflow (e.g. technical) can lead to abandoning it.

Appendix A.5.3 contains details of the findings that substantiate the perspective on implementation from an organisational view point.

7.4 Summary and conclusions

7.4.1 Implementation

When asked about experiences with and perspectives on the actual implementation of the various ccVC services in practice, participants of the focus groups discussed various factors that are to be taken into account. Topics discussed included: factors related to implementation processes; referral; the provision of the services; and the technology applied. Information about and training and education in the service was noted as relevant.

Regarding implementation processes, professionals see implementation as feasible and not requiring much investments. However, it was stated that it is important to have clear leadership and management support to ensure the innovation is implemented and maintained. Also, time as a resource was mentioned: professionals experience the lack of time as a barrier to, for example, helping patients install the program. Professionals also discussed that it takes time for them and for patients to get used to and comfortable with videoconferencing facilitated mental healthcare services.

Regarding referral and treatment processes, it was stated that especially when the services reduce case-load, use in practice most likely will increase. Professionals also indicated to have good experiences with patients when the service is offered at no cost. For proper referral, it was noted that patients should not be urged to make a decision for treatment at the first consultation.

Participants in the focus groups discussed barriers and facilitators to implementing ccVC in routine practice, indicated that the VC technology is currently experienced as a barrier. This includes not just the technology used, but also the availability and adequacy of the infrastructure on which the services are running, such as internet connection, PCs, cameras, etc. Professionals indicated they were not knowledgeable enough to use the program and to guide the patients in using ccVC services. Also, limitations in basic ICT skills, and having the right equipment, are important factors to take into account when implementing these services in routine practice. Information and training need to be provided to inform the professionals on what to use ccVC for and how to operate it.

7.4.2 Leadership management

All trial sites conducted semi-structured interviews with representatives of the organisations that implemented the ccVC services in routine practice. The representatives who were interviewed had a certain level of decision making power in the organisation and/or a leading role in the implementation processes involved.

One of the themes discussed was the engagement and commitment of the organisation's leadership in implementing the cCBT services. All interviewees indicated the perception that senior management is very committed to getting ccVC implemented. This commitment was shown in various ways, including providing resources for training and information sessions for professionals, and time to gain support. Interviewees indicated that it proved to be a difficult task, and depended heavily on individuals. Management found it useful to raising awareness among health professionals to be part of a wider and innovative European ICT-based project, and involve them in the various phases of the project.

The decision making processes before and during the implementation work were also discussed. Interviewees reported that in general, decision making processes are top-down, or in some instances, participatory. Regarding the existence and use of explicit implementation strategies, interviewees acknowledged the relevance of strategies, but strikingly at the same time reported that there was no explicit strategy developed and used.

7.4.3 Perspective on implementation (Organisation)

From the perspective of the organisation, particpants in the semi-structured interviews identified various factors that should be taken into account when implementing ccVC in routine practice. First, there are aspects related to the needs and perspectives of both management and professionals that should be taken into account. Interviewees indicated that in general the implementation of ccVC was regard as a success when the service is offered as standard for certain clinical populations. However, other interviewees did not report an explicit expected outcome in order to regard the work to implement ccVC in routine practice as a success.

Regarding facilitating factors in terms of organisational strategies and priorities, interviewees indicated that the commitment to a certain higher level goal such as collaborative care, quality improvement, or a better understanding of disease, are important drivers for prioritising implementation of the ccVC services. Representatives of the organisations indicated that technology and guidance in its use are important factors to take account of. Often, issues with technology often lead to disapproval by professionals very quickly.

8. Domain 7: Socio-cultural, ethical and legal aspects

Domain 7 is concerned with the broader context of the implementation. In MasterMind, it is concerned with two issues: responsibilities and public image. Although more topics were identified in the design phase to discuss with both professionals in the focus groups and with organisation's representatives in the interviews, none of the focus groups and none of the interviews reported specifically on professional liability when delivering computerised mental health services, nor on using ICT for benchmarking purposes within an organisation or across. This is noteworthy that these topics thus seem not to be important at the moment.

Regarding responsibilities, the focus groups with healthcare professionals indicated that it is important to have clear definitions on roles and responsibilities.

Concerning the topic of public image, Interviewees clearly indicated that it is expected that the MasterMind services contribute to a positive image of psychiatry in general, and the service provider specifically.

In summary:

- In offering ccVC services, healthcare professionals indicated that it is important to (re)define responsibilities, for example in tackling technical issues, and who is responsible for treatment.
- Representatives of the involved service providing organisations indicated that it is expected that Mastermind services will positively impact the organisation's public image. The reasons for this contribution to a positive public image include an increased treatment efficiency, wider accessibility, and treatment flexibility. In addition, this image might attract health professionals who want to drive this further forward.

9. Transferability assessment

In the MasterMind project, a large amount of data and knowledge has been collected, and is made available for other European regions in their work with implementation and up-scaling of eMental services. As part of the reporting of the results the MasterMind project, two approaches to transferability assessment are provided.

The first is the transfer of the knowledge of the implementation process and organisation of services. This information is primarily made available in the evaluation of domain 6 (Organisation) in the MAST model, the tools and process applied in the market place concept described in D5.6, and in the deployment plans in D3.6. Processes, experiences, and methods from this work have been validated by the Advisory Boards and external experts, and can be transferred by other regions.

The second approach to transferability is to look at the specific outcomes for the domains in the MAST model based on the demographic characteristics of the specific region wanting to transfer the service.

It is possible to assess the transferability of results, i.e. determining whether particular demographics, clinical, organisational, or economic aspects have affected the outcome, and to what extent the results can be transferred to e.g. a larger patient group or other organisations.

This could include assessment of:

- Comparison of demographic characteristics with national or regional data.
- Widening of inclusion criteria and the inclusion of other types of patients.
- What would it take to scale up the intervention to other areas.

This should be based on the MAST model, and include the assessment of scalability and generalisability of the domains in the MAST model. The MAST model also contains a guideline for the statistical methods that should be used to transfer results between regions or patient groups.

To create a transferability assessment, a specific region or patient groups is required in order to estimate the expected outcome. In the MasterMind project, we did not have access to this information, and a specific analysis lies outside the scope of the project.

10. Problems encountered and lessons learned

This chapter lists some of the preliminary lessons learned and recommendations from the pilots.

10.1 RSD

What main problems did you experience, and how did you solve them?

The main problem has been to engage the professionals, especially the nurses. There have been some challenges to solving this problem because using video consultations is currently a voluntary add-on. Thus, it was not possible to formulate expectations to nurses who were cautious or opposing including patients in ccVC.

Another major challenge has been the lack of support from the management team in solving connection problems in the implementation of ccVC. Management has given their support to the use of video consultations, but there has been too little follow-up regarding the challenges experienced in everyday use.

Setting up the technical services has caused problems for both patients and staff, who often lacked qualifications to download an app and install a program on a PC. In RSD there is the opportunity to get help from a central IT department, but this option was often not used by staff. Thus it was not possible to give patients support in relation to the technical challenges, but staff were not aware of the possibilities.

What are the experiences of the healthcare workers?

The experiences are that the professionals (especially the psychiatrists and the psychologists) were often satisfied with using video consultations once they got it going.

What are the experiences of the patients?

The patients are generally very satisfied with using video consultations. But they often prefer the first contact as a face-to-face consultation in order to create a better relation with the professional.

What recommendations do you have for others to start ICT based services in this area?

- To test in a smaller pilot study before implementation.
- To involve staff in planning the implementation.
- To ensure adequate technical back up for both patients and staff.
- To ensure continuous follow up of the implementation from the management.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

The numbers are very low compared to the amount of time spent on the implementation.

10.2 PHB

What are the main lessons learned regarding implementation and organisation of the pilot (including facilitators and barriers for implementation)?

Engaging healthcare professionals and providers: We decided to pilot the VC service within one team initially; it was decided we would work with the North Powys Community Mental Health Team (CMHT). All healthcare professionals within this team were very positive and willing to engage and participate in this pilot. The Consultant Psychiatrist who manages this team is extremely interested in the use of telehealth in rural areas, and so was committed to the MasterMind project and the VC pilot from the start.

Setting up the technical services: One of our main issues was the limited number of available rooms within our health board sites that had internet / Wifi access, in which we could hold our VC appointments. We also had to wait for out VC solution, Skype for Business, to be rolled out, as this was being done on a national scale across Wales through NWIS (NHS Wales Informatics Service).

Patient recruitment: Patients were selected by the Community Mental Health Team staff who were on the existing caseload. The criteria included patients who would, due to their remote location, find it difficult to travel to outpatient clinics to see the psychiatrist. Patients also needed to be comfortable to participate in VC, although their Community Worker would be there to support them. We also found that this was an opportunity for the patient and community worker to access the psychiatrist at short notice during a crisis.

Organisational issues: On the whole, our organisation has been very positive and engaged in the implementation of ccVC, especially as it can have a positive impact on the achievement of the targets and objectives set by the Welsh Government with regards to waiting times, etc.

Finance: This has been quite a complex issue for us, in that it has been difficult to predict spend, and a lot of work and detail goes into the collection of data with regards to staff time. It is felt that if VC was rolled out on a larger scale, then this would reduce the cost of travel for the specialists (psychiatrists, etc), the healthcare professionals, as well as the patients.

What main problems did you experience, and how did you solve them?

The first 'major' issue we faced during the trial was the delay in the roll-out of our VC solution. It was decided that Skype for Business would be rolled-out on a national scale across Wales by the NHS Wales Informatics Service (NWIS). Due to this, we were restricted as to the timescales in which we received access to the VC solution; this then delayed the start of our pilot. Once we had received Skype for Business and were ready to begin enrolling patients, we then realised the issues we had that not all consulting rooms have internet / Wifi access; this then restricted where VC appointments could be held. Once we knew what rooms had adequate internet access to use the VC, we were able to enrol patients and begin our VC appointments.

What are the experiences of the healthcare workers?

Most of our healthcare professionals were very positive about the VC service, although faced with some initial technical and logistical issues. Due to some of the patient consulting rooms not having Wifi access, this made it difficult to arrange the VC appointments, as they could

only make appointments at times when the rooms with Wifi access were free for them to use. Therefore at times this service was more of a hindrance than a help, as it could take double the time to set up an appointment than it would take to arrange a face-to-face appointment. On the whole though, it was felt that the VC service was a positive step in the right direction for the use of technology in healthcare. It was felt that further training and support would be required in order to further implement the services into daily practice, as well as additional equipment across all health board sites.

What are the experiences of the patients?

On the whole, we received positive feedback from the patients enrolled into our VC service. Most commented that the VC appointment was as good as a face-to-face appointment, with the same outcomes being achieved. For a couple of the patients, it is possible that they were seen quicker than they would have been if they had been waiting for a face-to-face appointment; however, this is difficult to evidence with such a low number of referrals into the VC service.

The use of videoconferencing also reduced the travel time / cost to their appointments, as they were able to travel to their nearest health board site for the VC appointment rather than having to travel to the health board site where the Consultant Psychiatrist is located. Some patients found the process of seeing the technology in action humorous, for example incorrect camera positioning; this put the patient at ease prior to their consultation.

What recommendations do you have for others to start IT based services in this area?

- Consider software carefully, ensure the software providers have development plans in place to stay on trend with new technologies. Ensure the software can be accessed and is compatible with all devices on standard computer programs not on specialist programs.
- Ensure that confidentiality issues are addressed early in the project, as this can cause delay in implementation.
- Ensure professionals have a good understanding and receive adequate training on the technology before implementing, in order for them to be able to assist / support patients.
- Research what technological issues could be a risk to your service, which are out of your control, i.e. broadband access in your area.
- Pilot the service within one team first, make them the pioneers of the service and get good evidence of benefits before rolling out further.
- Invest sufficient time and effort into giving information to the necessary departments and injecting enthusiasm for the service.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

We did not have as many patient referrals as we would have liked, but our service was still deemed successful. All patients enrolled received at least one appointment with the Consultant Psychiatrist via videoconferencing.

10.3 GIG

What are the main lessons learned regarding implementation, and organisation of the pilot (including facilitators and barriers for implementation)?

Within GiG. we explored the use of VC as part of cCBT (Group C). We looked for patients who had an indication for the support of VC in cCBT. As distances from the patients homes to the mental health services are very short (mostly within 30 min), in only very few cases there was an indication for the use of VC. Of them, only half were motivated.

Please elaborate on any issues that have been of importance and please also elaborate with respect to the following categories:

- **Engaging Health care professionals and providers**

  Although technically VC is possible, therapists hardly ever indicated the use of it with depressed patients. They often thought that it is important that these patients are being activated and find ways to visit the clinics. Very slowly, the therapists are starting to experience which patient might benefit from VC. It is very important that they are encouraged by positive experiences of colleagues, and have technical assistance close to them when starting to use the VC services. Unfortunately, up to now the experiences with videoconferencing were not very motivating because of technical problems in using it.

- **Setting up the technical services**

  We found that using videoconferencing was often accompanied by technical problems. From the side of the therapist, the installation and setting up the headset and/or the microphone was a challenge. Also, we encountered technical problems in the sound or the video connection. Solutions were to update the browser, computer or application, and to close other applications that cause interference (such as skype). Sometimes the internet speed and stability was the problem. Although the devices used by the therapists can be controlled by the ICT department of the organisations, it is much more difficult to solve the problems arising from the side of the patients at home using different devices and software. We formed a team of a therapist and ICT employees to try out all kinds of devices and software to identify problems and solutions. We learned that it is important to summarise these finding in an easy-to-use manual for therapists, with short and simple instructions in FAQ. Also it is necessary to have a back-up plan with the patient (e.g. using the phone) to establish a connection when the VC connection fails. The therapist should discuss this beforehand with the patient.

- **Patient recruitment**

  Until now, the patients included live more than 60 minutes travelling from the clinic, have small children, or who suffer from physical problems that hinder visits to the clinic.

- **Organisational issues**

  We decided to start a separate eHealth outpatient clinic within the large organisation of GGZ inGeest. The main reason for this is that we wanted to concentrate our knowledge of eHealth. We created a team of therapists who are enthusiastic to become experts in using eHealth services.

We learned that, the ICT service desk needs to be well equipped, and easy to reach for therapists as well as patients. We organised an ICT contact person for our eHealth clinic.

- **Finance**

  We still need extra investments to upscale the eHealth facilities in the organisation. We hope to motivate health insurance companies, to put effort and money into the implementation of eHealth. Up to now, we have not succeeded in that.

What main problems did you experience, and how did you solve them?

The main obstacles are the technical problems; it costs a lot of time to organise the videoconferencing, especially to overcome the technical problems (not having sound or video connection); therapist have to think about taking along a laptop and headset (therapists do not have their own room in our organisation, flexible work space). Secondly, therapists need to recognise which patients could benefit from VC, and motivate the patients to use the services.

What are the experiences of the healthcare workers?

The extra investments that need to be done before the VC connection can be started are burdensome. Once a routine is developed, VC is easy to use. Therapists are not convinced that the contact with the patient by VC is of the same quality as in a face-to-face session.

What are the experiences of the patients?

Once VC is running smoothly, patients are satisfied with the extra service. Some patients are not able to overcome the technical barriers with VC.

What recommendations do you have for others to start IT based services in this area?

When starting a VC service for depressed patients, be clear to therapists as well as to patients about which patients you do or do not offer the service to.

The technical equipment need to be extensively tested before starting the service, and not while experimenting with the service (as we did).

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

We intended to include 10 patients. So far we have reached nine patients . Six of them participated in the study. The other three were offered videoconferencing, but did not start for different reasons. It showed it is very hard to find patients who could possibly benefit from the VC services. Beforehand, we expected a broader scope of possibilities of VC for depressed patients. Even when all technical barriers are settled, we think that only a small minority of depressed patients in our area may benefit from VC.

10.4 SALUD

What main problems did you experience, and how did you solve them?

Proposed solution(s)	Specific action(s)
Recruitment of professionals	
Highlight the added value of the service for both mental health care professionals and primary care teams: better quality of the service; updated and more accurate information about the patient; professionals' empowerment; reduction of the number of consultations at the MHU. Adaptation of the protocol to the specific professional's needs.	Presentations to the professionals with specific materials highlighting the added value of the cooperation between Primary Care and Mental Healthcare Professionals. Inclusion of complex patients suffering from depression, but also with other specific needs.
High workload of mental healthcare professionals	
To make the ccVC service as simple as possible for professionals, integrate it into routine practice and focus on the actions that might have a higher impact on their daily work.	Design specific ICT modules that support the ccVC sessions. Ease the process for patient recruitment, information sharing and recording before, during and after the ccVC sessions. Help the professionals with bureaucracy and technical issues. Active participation of the professionals in the service design from the beginning.

What are the experiences of the health care workers?

The initial attitude towards these two services (ccBT and ccVC) can be classified into two very different groups: professionals highly interested in innovation and in new services, and professionals who show reluctance to change for different reasons (lack of time, fear of technology, lack of motivation because of previous experiences).

Each professional profile that has participated in the project plays a different role, and has a different perspective:

- Psychiatrists claim that the ccVC service is very helpful to provide a better quality service for patients. Many patients present problems of accessibility and communication, and this service helps the mental health professionals to know them better in their environment. This service is also very positive because it improves the communication between the care teams, and provides a more integrated approach in the patient treatment.
- GPs consider that ccVC service improves their empowerment in dealing with mental health problems and the quality of the service provided to patients. They feel more confident when treating these patients' disorders.

What are the experiences of the patients?

Patients included in the ccVC service do not participate directly in the ccVC sessions, but they have a very positive opinion about it. They perceive it as quality of care. They are aware of the regular communication between primary and mental health care teams, and they feel more protected and better treated than with the traditional approach.

Patients also are pleased with the ccVC concept because they live in rural areas with a limited communications infrastructure; this service saves them time, as it avoids trips to the Mental Healthcare Unit, which is located about 100 km from their homes.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

Aragón has reached its recruitment target. The results are considered as very positive, not only because of the figure, but especially for the quality of the results obtained.

The service has had a high impact so far because of the characteristics of the healthcare area (rural and mountainous territory, low density and high average age of population, close relationship among people, location far from the Mental Healthcare Unit) and the patients participating in the project. The primary care team working in MasterMind deals with 1.360 patients distributed in 23 rural settlements, with a prevalence of mental health disorders above the average.

This service must be designed carefully so as to evaluate its suitability to other healthcare areas. That is the next challenge to be faced.

10.5 BSA

Engaging Health care professionals and providers

One of the most important facilitators has been that the organisation and especial the medical management are convinced about the benefits of Get Over your Depression and the VC for collaborative care and treatment of depression in order to optimise care for patients with depression.

The training and the dissemination materials to engage our healthcare professionals has been the key factor for success within the project: having the recruiters on board. We did an initial and strong campaign called “recruiting the recruiter”, and we did a lot of dissemination activities in different phases of the pilot. In addition, most of our professionals had experience with cCBT treatment, because BSA previously implemented Caring me, another cCBT treatment to care for our users with depression.

Of course, there was a group of professionals who needed extra information and engagement to change their beliefs, and move from something that they already know to “something new and risky”. A change in their beliefs requires a lot of effort.

Setting up the technical services

The problems to extract data from our EHR, with our servers and some technical issues, have created a barrier or difficulty for implementation, especially our cCBT tool. To solve it, our

ICT team had to make major effort. In addition, the internal managementr team did some corrective actions after studying all the incidents. Examples:

- Users' email (hotmail) made recruitment difficult. We detected some cases in which users had not received the username and password because the first email was sending to SPAM. For this reason, we did a specific "campaign", with all the steps that users needed to check if they did not receive the first email.
- We detected and solved some problems with specific professional equipment for collaborative care (ccVC).

Patient recruitment

Recruitment is influenced by the seasonal incidence of depression. The previous professional engagement is another factor to take into account. There were several differences between the different Primary Care Centres that BSA manages.

Organisational issues

In BSA, the most important advantage for the implementation of collaborative care was that it was put in place some years ago. But the experience with MasterMind has opened a new work group to improve the videoconference connection in order to do multicentre videoconferences. In addition, BSA had experience with cCBT treatments because of a previous programme called Caring me.

Finance

During the pilot, the facilitator was that Get Over your Depression could be used free of charge within BSA. On the other hand, the collaborative care system used within the pilot was a free tool. The investment to take into account, especially after the pilot, will be the infrastructure and personnel required.

What main problems did you experience, and how did you solve them?

At some times, ours GPs were overloaded. Therefore some nurses were enrolled in order to help with the intervention (Get Over your depression), and we allocated financial resources to those who recruited patients. The Primary Care Centre is in charge of administering them, but they can only be used for mentoring purposes.

What are the experiences of the healthcare workers?

About the videoconference, some of them apologised about some technical issues, but most of them assess it as an opportunity to communicate between professionals, and especially between different centres. In fact, the experience with MasterMind has opened a new work group to improve the videoconference connection in order to do multicentre videoconferences.

What are the experiences of the patients?

The videos, the time and the follow up from their professionals are the most important points for the users. The platform was developed through an iterative co-design process involving user interface designers and end users. According to that, and the assessment conducted on the usability of the platform, it has been demonstrated that patients find it very easy to use.

In addition, patients are actively involved in the treatment of his/her pathology, and they show their satisfaction when they progress in the treatment.

On the other hand, we had to contend with some technical issues that damaged their trust, but we implemented some corrective actions. Finally, they have not identified confidentiality issues. No cases have emerged of users worried about the fact that others may have access to their personal information and discover their condition.

What recommendations do you have for others to start ICT based services in this area?

- It is important to visualise (from the professional's and user's perspective) the benefits of this kind of service. Usability would be enhanced with scientific evidence on the clinical efficacy of the online treatment.
- Motivation is a key factor**,** not only at an individual level, but also for groups, professionals and patients. For those professionals who have to change their "mind", it is important not to feel alone in the changing process, which is why group training sessions can be useful. On the other hand, there must be an incentive in the early stages of their changing process for professionals and also for users.
- They should have contingency plans to avoid organisational, technical or other issues that can happen during the implementation. For example: try to foresee some barriers: lack of ICT literacy on the patients' side that may cause drop outs in the recruitment process; lack of access to technology and internet. In fact, the minimum capacity to manage with ICT solutions is an important inclusion criterion.
- They should have a contact centre or a clear system to manage all the incidents with everyone involved. The channels (email, phone, …), the kind of answer, the time for answering are also important.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

About collaborative care, initially we reached several cases, but we stopped sending data about ccVC for MasterMind because it was not new in BSA, and we needed to focus on cCBT. The most important point for the clinical staff was: improve the videoconference connection in order to do multicentre videoconferences.

10.6 SERGAS

What are the main lessons learned regarding implementation, and organisation of the pilot (including facilitators and barriers for implementation)?

We regard the following as the most relevant aspects for a proper implementation of the project:

- Making a firm commitment on the part of the organisation in order to implement Mastermind.
- The continuity of the team in charge, as well as having well defined responsibilities throughout the whole study.

- A fluent, fast coordination between collaborators and the organisation so as to be able to give an efficient response to the feedback provided by those participating in the project.

The facilitators for its implementation in our Autonomous Community include the pre-existence of such computer tools in the daily practice of professionals, such as the computerised medical record, where the Mastermind project has been included.

Among the most remarkable barriers that have hampered its implementation was the lack of time and work overload borne by professionals; also, the slowness of the technical support.

Please elaborate with respect to the following categories and on any other issues that have been of importance:

Engaging healthcare professionals and providers: Following initial general training on cCBT interventions, the professionals participating in this project have required individualised training and support via email or telephone from the research team. Individual support to professionals has been essential for their involvement in the project.

Setting up the technical services: In our region, the decision to introduce the Mastermind project in the new computerised medical record has been a commitment to the future, but it has brought about the usual difficulties resulting from projects overlapping and coordination.

Patient recruitment: Experience so far on this project has provided us with information on the profile of the patients that most benefit from these interventions. Patients with mild or asymptomatic depressive disorder are those who benefit most, as preventive interventions.

Organisational issues: The proper coordination between the different participants in the project, and including these programmes in the regular service portfolio offered by professionals, are indispensable for the successful implementation of the project.

Financing: In Galicia, financing is public, and these programmes are part of regular mental healthcare, so they do not entail additional costs to patients.

What main problems did you experience, and how did you solve them?

The main problem is the workload of GPs, which makes it difficult to organise the project more effectively. We have tried to solve this problem by asking the organisation for more time and means to implement the new tools.

We have had difficulties in the means used to inform stakeholders; information via email in some cases has not been useful. We have changed the procedure, and we now give the information in person; the result has been that professionals have considered this information more effective.

Prior distrust of new technologies due to bad experiences (bad connection, delays...) has been solved by checking the proper functioning of the new tool.

What are the experiences of the healthcare workers?

GPs describe the experience as positive, as a closer collaboration with specialists is a frequent demand by GPs.

In those centres where face-to-face consultation (GP-psychiatrist) had been established, a greater reluctance to use new technologies was found, despite the fact that they allow an increase in the frequency of sessions and facilitate access to more professionals.

In those centres where consultation was not previously performed, ccVC has been enthusiastically accepted, despite the difficulty in organising the workload.

What are the experiences of the patients?

With the data available so far, the impression patients have regarding the cCBT is that it is a useful programme that supplements their regular therapy, but they need more time and greater supervision.

What recommendations do you have for others starting ICT based services in this area?

The main recommendation is to have a detailed knowledge of the daily practice of professionals so as to be able to adapt the new technologies to their real needs. Also, implement good coordination to effectively respond to their suggestions or the difficulties they encounter.

What are your comments on the numbers of patients / participants that have been reached by MasterMind and have completed treatment?

In our region, the start of the programme has been delayed, and we cannot make an accurate assessment yet, but the initial impression is that few complete their treatment. We believe that patients need more time to complete the programme, and greater supervision to motivate them due to the characteristics of depressive symptomatology.

10.7 ULSS9

What main problems did you experience, and how did you solve them?

A major difficulty concerned the involvement of GPs, who have perceived, especially at the beginning of the project, Mastermind as an added chore rather than as a resource and a prevention and education tool which can reduce accesses to doctors' offices.

It was solved by a greater commitment and involvement of Mental Health specialists, in particular in the enrolment phase. However, the number of specialists who participated in the project was limited compared to what was expected.

To involve more professionals at the Mental Health Centre, nurses have been involved for the follow up phase, with the aim to follow patients with difficulties in the use of ICT tools.

Communication between GPs and mental Health specialists has been difficult and has resulted in a very limited use of ccVC.

What are the experiences of the healthcare workers?

Healthcare workers who have been involved in the Mastermind project at different levels have verified the usefulness of the tool, which acts primarily as an important tool of psycho-education and prevention, and as an interesting resource within the relationship between the specialist and patient, and could help communication with the GP.

What recommendations do you have for others to start ICT based services in this area?

Mastermind is a important and innovative tool to introduce in Italy the stepped care vision and the evidence-based treatment for low and moderate depression, as promoted by NICE guideline, at different levels: citizens, GPs and mental health specialists.

As mentioned before, Mastermind has proved a valuable tool in the relationship between the specialist and patient, and between specialist and GPs.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

The number of patients who finished the treatment is in line with that of similar projects, highlighting a physiological number of dropouts.

10.8 ASLTO3

What are the main lessons learned regarding implementation, and organisation of the pilot (including facilitators and barriers for implementation)?

Main lessons learned regarding implementation and organisation pertain to a large variety of factors; the following may not be exhaustive.

Regarding the ccVC service, these factors should be considered:

- Select a tool which is both easy-to-use, and effective; the tool we used (Easymeeting©) has some merit, but eventually it did not show all the potentialities of a very good tool.
- Foster psychiatric consultations between different emergency rooms where specialists are not physically available. In this case, ccVC between emergency doctor and specialists in psychiatry could help to significantly reduce the time and efforts of a consultation; at the moment, patients need to move physically from one centre to another.
- For ccVC, it was useful to provide a tablet to the health professionals.
- Lastly, it could be possible also to provide psychological counselling via ccVC service, and not only monitor patient's cCBT treatment.

Regarding the economic and financial aspects, in Italy the healthcare services provided by the Local Health Authorities are partially or total reimbursed by the regional government following the guidelines and rules established by the NHS. The main criteria of reimbursement of healthcare is represented by providing to patients public healthcare

services included in the LEA[30]; these are the common and official basic level of assistance covering the health needs of the population. Telemedicine services are not included in LEA, so they do not received any form of reimbursement, except for several specialist disciplines[31] which do not include psychiatry.

Hence there is not currently a fixed reimbursement model at national level. The tele-psychiatry tools can be maintained only through access to external resources such as innovation funding by regional and EU programmes, support of local foundations, and continuing with the efforts of the health professionals already involved in Mastermind to consider further availability of local resources.

What main problems did you experience, and how did you solve them?

- Patients' recruitment, and their degree of acceptance of the innovative cCBT and ccVC services (in the Italian context): we made a significant dissemination of the project, to attract both doctors and patients, and show the feasibility of this innovative service.
- Significant collaboration of health professionals throughout the entire pilot: we did not really solve it, as both GPs and psychiatrists needed to be continuously reminded of the pilot, and supported in all their activities related to the project. As a result, only a small group of GPs and psychiatrists really cooperated with us for the entire duration of the pilot, while the majority of them did not collaborate significantly.
- Adequate internet coverage throughout the territory of our unit: this was not a factor under our control. However, as far as our unit is concerned, we implemented technical equipment especially in mental health centres in which the internet connection was more stable and reliable.

What are the experiences of the healthcare workers?

Doctors (GPs, psychiatrists and psychologists) who really cooperated throughout the entire duration of the project acknowledged the innovative and potentially very useful nature of these new services. However, they also underlined the difficulty of integrating this kind of project, and the associated monitoring of patients' use of services into their already busy clinical routine. In other words, significant case-load for both GPs and psychiatrists emerged as the main issue that slowed down and hindered a full cooperation and satisfaction of healthcare workers towards this project.

What are the experiences of the patients?

We eventually recruited two types of patients: patients with informatics skills, high motivation to treat themselves, and availability to work overtime with the tools; and patients with a lack of skills and motivation. Patients belonging to the first group had a very good experience with these innovative services, clarified their symptoms, and benefited from the treatment path. Patients of the second group did not get benefit, tended to drop out easily, and as a result did not provide positive feedbacks about these services.

[30] The essential levels of care (LEA) are the facilities and services that the NHS has to provide to all citizens free of charge or on payment of a fee (ticket), with public funds collected through the general taxation. These have been defined by the Decree of President of the Council of Ministers of 29 November 2001, entered into force Feb. 23, 2002.

[31] Cardiology, diagnostic imaging, ophthalmology, clinical diagnostics

What recommendations do you have for others to start ICT based services in this area?

Generally speaking, ad hoc training sessions and continuous monitoring of the study are key aspects facilitating adherence to the project. To realise this, it is necessary to have economic resources, adequate technical equipment, and permission of all stakeholders involved.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

We were not able to reach the declared target (N=300), mainly due to the difficulty of GPs in recruiting patients. However, the drop-out rate was significantly lower than "standard" drop-out rates reported in scientific literature about compliance to pharmacotherapy for depression[32], so our general comment is that it is not so easy to attract patients to these services, but once they have been recruited and informed, this kind of service may provide benefits and positive effects to a significant proportion of them.

10.9 SCHOEN

What are the main lessons learned regarding implementation, and organisation of the pilot (including facilitators and barriers for implementation)?

- **Engaging healthcare professionals and providers**

  In Germany, the successful implementation and maintenance of this innovation is only possible with a long-term funding plan from health insurance companies. Therefore, from the start there was an effort to enter into cooperative agreements with health insurance companies. In order to engage providers, we found it necessary that they are able to a) easily understand the innovation, b) transfer and place the innovation into their product catalogue, and c) see the advantage and value of the innovation.

  Therefore, the innovation plan was adapted with regards to these points, and the intervention was structured as close to routine outpatient care as possible. In Month 7 of the project, Schoen was able to close the first contract with a major public health insurance company; in Month 18, they were closing a contract with a major private company.

  Work is still ongoing to close cooperation agreements with more health insurance companies. One hindering factor seems to be that some companies already invest in their own internet innovations, and are not at the moment interested in collaboration with one specific provider. We expect that the publication of the results of the German MasterMind trial will attract more potential partners. In addition, Schoen is now active in approaching smaller health insurance companies, which are usually attached to bigger industrial companies.

  Legislative issues still prevent providers and therapists from engaging in online therapy.

- **Setting up the technical services**

  To start the internet- and video-based service, Schoen found an experienced partner to provide the technical infrastructure for the intervention. Relying on an external, already operating partner brings many advantages, but also limits the innovation to

[32] Pampallona et al., 2002; Reimherr et al., 1998

the provided technical options. In addition, bringing together systems, in this case of the clinic and the technical provider, has obstacles such as security restrictions that need to be overcome.

- **Patient recruitment**

  Writing informational letters to a pre-selected group of patients proved to be extremely inefficient. As a corrective action, Schoen tried to identify "more-at-risk" groups, and called these patients after they received the letter. In addition, the health insurance company started using their case management system to approach the client in a more directly. This approach was successful, while not being too time-consuming. Additionally, we realised that “buzz marketing” (via friends and family of clients who were either inpatients in the clinic or received a letter from the health insurance company) was a very efficient recruitment method. On the other hand, and even though these measures increased inclusion numbers, only broad media (e.g. through the health insurances' magazine) has proven to generate acceptable case numbers.

- **Organisational issues**

  One major issue that became clear in the course of implementation was that the project needs support from the highest organisational levels. Only then can a complete implementation into existing structures take place.

- **Finance**

  Even though we found a solid refinancing structure (equal and more to face-to-face therapy), and we had the MasterMind financing for the implementation, Schoen did not manage to find a solid business case within the project period. Therefore, new staff have been employed to take this matter further from an economic perspective.

What main problems did you experience, and how did you solve them?

There are still major reservations against telemedicine in Germany in general, and within the organisation specifically. These reservations can only be overcome through a constant open dialogue in combination with evidence-based publications. Within the German MasterMind trial, one objective was to assess the degree of reservation as well the acceptance by healthcare professionals over the course of the project and beyond. In order to engage therapists within the project, it became obvious that it is important to provide them with an easy to use and stable system, as well as an easily accessible ICT service. Therapists also need sufficient information on the patient before engaging with him/her, and a clear picture of exclusion criteria for the service as well as emergency regulations. The project infrastructure needs to account for the downsides that online therapy brings to therapists. Therapists report that providing therapy via videoconferencing and interacting with a patient using the platform as more tiring than direct face-to-face contact, especially if the system is unstable. Here, the organisation needs to provide the therapist with compensation for the additional effort and stress; otherwise, the therapist will prefer to give regular face-to-face therapy. Additionally, also for the organisation, information was one key to successful implementation. For the process, it was essential that one specific key person within the clinic is present to answer questions of employees, and that this person is perceived as a member of the organisation and not as a "foreign" person sent from another organisation or (research) institution. Within the implementation process, it is obvious that the more organisations and partners are involved, the slower the process is often driven. Here, the decision was made to work for a sustainable system instead of rapid implementation. In

order to promote the implementation, Schoen firstly implemented the innovation in one setting, and then rolled it out to the other clinics stepwise.

Preference was placed on giving the organisation's different sites space to implement their own processes, instead of forcing one overall process on the whole organisation; this approach was considered the most acceptable one.

Schoen adheres to the belief that constant monitoring and adaptation of the innovation is necessary in the implementation process to foster sustainability of the service. Milestones were used to reflect on processes and procedures. For example, before roll-out to the other clinics started, the first clinic optimised all their practices.

What are the experiences of the patients?

We conducted 15 semi-structured patient interviews in order to evaluate the patient's experience with the treatment Depression Online, and the experienced usability and acceptability of the treatment. Overall, Depression Online has been rated very positively. From the patient's perspective, the perceived focus lay on videoconferencing and the direct interaction with their therapist. Here, the online therapy is perceived to be equal to face-to-face sessions. Depression Online is rated useful, the technical experience is regarded to make working with the programme easier. Another crucial factor is the therapist-patient fit: a trusting relationship is regarded as necessary; if it is lacking, the perceived usefulness of the service decreases. Depression Online is also highly accepted, for the same reasons as above.

What recommendations do you have for others to start ICT based services in this area?

The integration of different data collection systems is a big issue. To plan the implementation, the smallest number of data collection systems should be used. This should also be taken into consideration when choosing specific ICT solution providers.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

We found that we attracted a different population with our service than expected. We were expecting mild to moderate severely depressed patients who chose online therapy because they thought that their symptoms were not burdensome enough for "regular therapy", or patients that were not able to leave the house or lived far away from a city. In contrast, we took on many patients that reported that they had been dissatisfied with the treatment they had received before, and wanted to try "something different", or patients who stated that they had been rejected from regular therapy. Often, these patients presented to the diagnostic examination with comorbid disorders (often personality disorders) and chronic depression. In addition, patients reported not wanting to go to the therapist in their town, because they could be seen there and talked about; often these patients were employed in the healthcare sector as well.

10.10 NST

What are the main lessons learned regarding implementation, and organisation of the pilot (including facilitators and barriers for implementation)?

- **Engaging healthcare professionals and providers**

Some healthcare professionals in specialist healthcare already had experience working with VC, and saw the potential for improvement by introducing new services. However, to get this into regular care, we also had to engage healthcare professionals who did not have experience with VC or cCBT. They have a very busy schedule, so the solution should be easy to use, and easy to get both technical and therapeutic assistance when needed. We are working on training more therapists in how to treat patients with the new services, and expanding to new areas.

By having a GP on the project team, we made sure the services we offered were useful to the GPs. However, it is a different way of doing things, so even if they saw the positive potential, it required a lot of work on information, reminders and meetings.

We also made sure to engage the technical staff at the GP offices. Involving technical staff was a crucial success factor. One of the ways we did this was by presenting the project at a forum for technical staff at municipalities and GP offices involved. By doing this, we could agree on details on the technical solution, and set up and test equipment without involving the GPs.

- **Setting up the technical services**

  For videoconference, we intended to use a Web RTC solution integrated in our web portal. Due to unforeseen problems with the Norwegian Health Net (NHN), the solution was unstable when used between partners in the NHN. At the same time, a solution with Skype for Business was being implemented in the Northern Norway Regional Health Authority (NNRHA). MasterMind serves as the first step of this much larger implementation in the whole of Northern Norway of an integrated video solution for clinical use between specialists, and from specialist to GPs and to patients at home.

  The equipment we used for VC was standard web cameras and speaker phones.

- **Patient recruitment**

  We used the web portal to recruit self-help cCBT patients. For ccVC, GPs and specialist have chosen the patients who they thought would benefit most from getting the treatment.

- **Organisational issues**

  The main project group was from the Norwegian Centre for integrated care and Telemedicine, and the psychiatric clinic at the University Hospital of North Norway. Both organisations have been in reorganisation during the project, with a change in leadership. New leaders had to be informed and give acceptance to using Mastermind in normal care.

- **Finance**

  We have been aiming for cheap technical solutions, with minimal extra equipment and software that is already in use. There will be costs in training staff and having personnel dedicated to this way of working. GPs receive pay per consultation. The extra pay for structured consultations and video meetings are well suited for cCBT and video use.

What main problems did you experience, and how did you solve them?

We had significant problems with the technical solution, as described above.

The main problem was patient recruitment. We tried to step up information to GPs and the general population. Unfortunately, we did not have the time to restructure our cCBT solution.

The risk analysis for using ccVC services in patients' homes was time consuming. By collaborating with the project that deploys Skype for Business in NNRHA, this was speeded up.

The ICT infrastructure varied widely between municipalities. Early involvement of ICT staff proved invaluable.

What are the experiences of the healthcare workers?

Some therapists in specialist healthcare are keen to learn new ways to treat people, and have started using it with their own patients. It is too early to conclude about their experiences at this stage.

GPs give positive feedback about the collaborative care solution for discussing patient cases with the specialist over videoconference.

What are the experiences of the patients?

ccVC was offered first to patients who had to travel to a district psychiatric centre to receive treatment. Many of these patients wanted to use video from home, and were happy when we could offer that. Most patient where happy with using ccVC, and said it was surprisingly similar to face-to-face treatment.

What recommendations do you have for others to start ICT based services in this area?

We would make the following recommendations:

- Make sure the services are useful for all those involved.
- Involve the stakeholders (patients, GPs, technical staff, etc) at the planning stage, and frequently throughout the implementation.
- If possible, use equipment and software that is very easy to use and maintain.
- For future self-help and GP use, questionnaires and registrations should be kept to a minimum, and be logically integrated in the cCBT program as a patient self-registration of own progress.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

NST has had 28 patients involved in the ccVC service, and had over 150 direct video consultations with patients. GPs are eager to participate in the monthly collaborative care meetings, and often suggest topics for the agenda ahead of the meetings. We are working to continue and expand this service in the healthcare service in Northern Norway.

10.11 AHP

What main problems did you experience, and how did you solve them?

As we are smallest site / partner, and only have one fulltime person dedicated to the project, the main issue was the administrative tasks, translating questionnaires, and applying for ethical approval.

What are the experiences of the healthcare workers?

A workshop was held for the local healthcare workers in November 2015, to introduce them to the project. The collaborative care has worked satisfactorily. In the first few months of the project, there was sometimes difficulty in the local sites assigning the contact roles, so we could up the ccVC properly, but this was quickly fixed.

What are the experiences of the patients?

The patients from rural areas in Greenland have been very grateful for the treatment, because previously there was no treatment offered. Therefore the patients have been very motivated for treatment.

What recommendations do you have for others to start ICT based services in this area?

We would recommend working within a large organisation like the national healthcare system that is implementing other eHealth offerings. Here we have had technical solutions already present, so we could quickly implement treatment.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

We reached our goal of 30 patients included in the project, which we are satisfied with. At the beginning of the project, we would have thought that the number was set a bit low. But it turned out to be the right amount to aim for.

10.12 Osakideza

What are the main lessons learned regarding implementation, and organisation of the pilot (including facilitators and barriers for implementation)?

Due to the type of intervention carried out in relation to ccVC in the Basque country, no significant barriers were found during the service deployment. Osakidetza provided the structure and the software to make the videoconferences. The only difficulty found was the one related to the use of the Lync platform by the professionals, which was solved by the development of an easy-to-use guide, provided by Kronikgune.

Initial engagement of the healthcare professionals, both specialists and GPs, was extremely high for both cCBT and ccVC. A significant number of professionals were excited about providing the online therapy. This remarkable attitude was mainly due to:

i. healthcare professionals recognising the need to empower GPs to provide tools (cCBT) to treat patients with mild or moderate depression;

ii. specialists demanding more time to focus on severe cases, and as a consequence wanting to refer mild/moderate depression patients to primary care; and

iii. enhancing patients' self-management capacity and treatment adherence by offering an attractive, accessible and user friendly online tool to tackle their disease.

Managers of the healthcare organisations supported the implementation of the cCBT and ccVC services, which reflected the commitment of the organisation and its interest, avoiding the feeling of a satellite project not aligned with the corporative strategy.

In summary, both bottom-up and top-down initiatives were completely in line, which created a perfect ground for the deployment of the services.

What main problems did you experience, and how did you solve them?

The only difficulty found was the one that the professionals had to use the Lync platform. Specific training was developed by Kronikgune to facilitate their use, and the Basque Country coordinators followed up the process.

What are the experiences of the healthcare workers?

Both GPs and specialists are satisfied with the ccVC service. Some issues regarding the patient's treatment were clarified during the sessions in all cases.

What are the experiences of the patients?

The patient does not take part in the videoconferences.

What recommendations do you have for others to start ICT based services in this area?

The willingness of both types of professionals to speak to each other is the most important facilitator to use this kind of service.

What are your comments on your numbers of patients / participants reached in MasterMind and completed treatment?

12 videoconferences have been done, reaching the target of the Basque Country. Even so, some more are scheduled before the end of the project.

11. Conclusion

At the end of the project, 878 patients have received treatment using ccVC or a combination of ccVC and cCBT. Information on 769 of these patients has been uploaded to the database, and has been part of the data analysis in this report. In addition, data on 196 healthcare professionals involved in ccVC has been uploaded to the database, and provided the basis for background information about professionals involved in the project. In addition, a number of healthcare organisations have provided data on the organisational aspects with respect to ccVC.

Many of the pilot sites encountered problems that interfered with the recruitment of participants with respect to VC. These problems were mainly related to implementation, engaging healthcare professionals, ethical approval, procurement activities, and the technical solutions. All sites have worked hard to meet these challenges, and the most important corrective actions have been information and continuous training activities to make professionals involved, and support for the GPs in order to help and collaborate with them. Efforts were also made to elaborate collaboration among healthcare professionals, GPs, technical staff, and project managers; this has laid the ground for enhanced collaboration.

More of the sites have experienced technical difficulties and problems in finding the optimal solution; this has been a delaying factor for many of the sites. A well-functioning technical solution is one of the key issues for implementing videoconference consultations, and it is very important to invest time in finding the right solution, and align it with the individual needs of the organisation. It is recommended to establish support solutions and develop local guidelines for running VC. The guidelines must covers topics such as organisation, documentation, reimbursement, support, training, and technical issues. Some of the issues are, for instance, the optimal size for the screen of the video conferencing system, and how to communicate in the room when using the VC systems.

It is important to involve the management of the organisation in the implementation of VC. All interviewees indicated the perception that senior management is very committed to getting VC implemented. This commitment has been shown in various ways, including providing resources for training and information sessions for professionals, and time to gain support. Management found it useful to raising awareness among health professionals to be part of a wider and innovative European ICT-based project.

Overall, patients report a high perceived satisfaction with ccVC, and the service to be well integrated. The majority of patients report a high quality of treatment, and that they have received the kind of treatment they wanted. Patients value the high level of privacy, that staying at home makes them feel less ill, that it is free, and that there is no waiting time. A majority of the patients would recommend the service to others, and are very satisfied with the help provided. The pilots who include patients directly in the videoconference sessions report that the patients are mostly happy with the service; one feedback from patients is that the quality of the VC is no less than having a face-to-face consultation, and that everything could be done in a face-to-face consultation was done. For the factors related to skills and attitude of the patient, patient's mobility, ICT literacy, and age were the important ones to take into account.

The majority of the health professionals are satisfied with the services, and would use it again. 73% of professionals report that the service meets their needs in the treatment of

patients. Throughout the pilot sites, the feedback from healthcare workers is mostly positive, and gives a positive picture of working with videoconferencing; some of the advances described are:

- GPs feel more confident assuming more competences when they have the appropriate support.
- Specialists are keen to help because they know it will mean avoiding the mild cases and reducing their waiting lists.

Another advantage described is the ability to save travel time and costs, and to be able to treat more patients for less money. Some sites also highlight the reduced need for referrals with the system in place.

There is a wide variation in the responses regarding the economic aspects of the implementation of the services; it is difficult to make a clear statement about this. However, it was highlighted that the cost of the service is not too high, and it provided the possibility to treat more patients. It underlines a more modern and accessible psychiatry where you have the possibility of offering a variety of different ways of achieving treatment. This is in line with the strategies of several countries of having a dedicated focus of the individual needs of patients.

Professionals see implementation as feasible, and not requiring much investment. However, it has been stated that it is important to have clear leadership and management support to ensure the innovation is implemented and maintained. Conversely, it has been found to be a time consuming process to implement. It is important to have a focus on this, and meet this with a well-planned process, efficient training, and useful guidelines.

MasterMind has provided all sites with some very valuable experiences with respect to VC, and all sites have succeed in implementing the technical solution, the recruitment of patients and professionals, and implementing the service. All sites have experienced some kind of challenges with respect to ccVC during the process, but also learnt some very valuable lessons for the future work for implementation and sustainability of the VC service.

Some of the lessons learnt are:

- It is important to have a well functioning technical solution that meets the needs of the patients and professionals. Good network connections are needed.
- It is important to perform some laboratory testing before deploying the solution in real life to avoid problems.
- It is important to have close contact and cooperation with the involved team, including physicians, nurses, GPs, technical staff and management.
- Preparatory planning is essential, together with a clear development plan before starting implementation.
- Staff and technicians must be sufficiently trained. Training sessions take time, and must be planned and scheduled carefully.
- It is important to introduce patients and relatives to the technical solution, and to support the patient in using it.
- Information for patients and partners is a key issue.

- National guidelines are needed e.g. with respect to law – what is allowed and what is required in the use of VC with patients at home.

The results from MasterMind demonstrate that VC can be used as a tool in connection with treatment of depression, and that eHealth solutions can be considered very well in the area of mental health.

Appendix A: Qualitative data from focus groups and interviews

A.1 Domain 2: Safety

Emerging topic and sources	**Description** *(quotes are in italics)*
Technological and confidential security	
Reported in six quotations in 3 of 5 focus groups, in: • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	An important aspect discussed in the focus groups related to safety was the technological and confidential security of private information. In general, professionals who adopted the use of the VC service with their patients did not observed privacy issues from patients. However, focus groups indicated that they are limited in their judgement, and depend on the information they receive from the programme managers and platform developers. *"Yes, I think it is [the service is safe]. We have been promised that it is, so we trust that."* *(1st focus group Denmark, guided cCBT + VC)* Therefore, professionals indicated that it is important to remain sensitive to confidentiality both concerning the technology as well as the environment in which the consultation with the patient takes place. *"But there may be some issues about where the conversation takes place, both for staff and patient, that you have an awareness at the place where it happens (…) So we ask that that the patient is alone in a room, or at least we know who is in the room."(1st focus group Denmark, guided cCBT + VC)* *"Patients didn't fear to be heard during their consultation using the ccVC service, because it was clear we were by ourselves."(2nd focus group Piemonte, guided cCBT + VC)*
Monitoring	
Reported in 2 quotations in 1 out of 5 focus groups in: • Wales: 1 group with therapists and practitioners (n=4).	Participants of one focus group in particular indicated that in relation to clinical safety of the patient, a sound risk assessment for each individual patient is key. *"...it needs to be risk assessed on an individual basis, and I think we do that within our clinical environment beforehand anyway." (2nd focus group Wales, ccVC)*

A.2 Domain 3: Effectiveness of the cCBT service

A.2.1 Engaging in VC delivered mental health services

Emerging topic and sources	**Description** *(quotes are in italics)*
Access to VC service	
Reported in seven quotations in 3 out of 5 focus groups in: • Denmark: 1 group with outpatient nurses and operation manager (n=3); • Badalona: 1 group with mental health specialists (n=6); • Piemonte: 1 group with GPs and mental health specialists (n=9).	From the viewpoint of professionals, it is crucial that patients have access to the required equipment, and that the professionals inform them about these requirements at inclusion. Compatibility of the service with hardware and software should be discussed with the patients. For example, videoconferencing software might not work as well on tablets and smartphones as on computers, which are more demanding to use. Participants replied that in some cases, patients lack access to the required equipment, which clearly forms a barrier to engaging with the videoconferencing delivered service. *"It is difficult to involve patients. People lack skills to work online, and thus a high proportion of the population cannot access the project." (2nd focus group Badalona, guided cCBT + VC)* The geographical location where a patient resides appeared to be an important factor in the engagement of a patient to videoconferencing-mediated services. *"Geographical location is a big issue: the more the distance between patient's place and the mental health centre, the higher the appreciation of this kind of service."(2nd focus group Piemonte, guided cCBT + VC)*
Consent and referral	
Reported in 15 quotations in 4 out of 5 focus groups in: • Badalona: 1 group with mental health specialists (n=6); • Denmark: 1 group with out-patient nurses and operation manager (n=3);	Focus groups reported that the first meeting needs to be in person for referral and consent procedures, it is important to introduce the patient to the videoconferencing service. *"It [the ccVC service] needs a reasonable thorough introduction, so that the patient feels safe to address, if they do not like anything about this." (1st focus group Denmark, guided cCBT + VC)* Support from health professionals was discussed as a key element at initiation and engagement of the patient in the service. An important factor is the enthusiasm and "faith" of the doctor in proposing the service to the patient. As such, professionals need to be well informed to transmit this information to patients. *"In proposing the service, the enthusiasm of the doctor is relevant in this kind of experience." (2nd focus group Piemonte, guided cCBT + VC)*

Emerging topic and sources	**Description** *(quotes are in italics)*
• Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	*"...I think just a good understanding of how it works, some kind of therapeutic rapport."* *(2nd focus group Wales, ccVC)* Participants suggest developing an easy to use manual for how to get started, for both healthcare professionals and patients. Regarding the issue of therapeutic rapport, focus groups noted that it is important to have an established relationship of trust with the patient before treatment with video commences. It was suggested to do the first meeting in person, face-to-face. *"We thought that it was probably not so good for the first contact, but it was something we could use in the long-term treatment. So we think that a relationship should be established before this treatment process commences."* *(1st focus group Denmark, guided cCBT + VC)* Also, it was seen during the implementation processes that professionals tend to recruit fewer patients as the implementation process progresses. *"As it was an innovative thing, we recruited patients for the project at the beginning, and then tended to forget the existence of this project."* *(2nd focus group Piemonte, guided cCBT + VC)*
Expectations and needs	
Reported in seven quotations in 3 out of 5 focus groups in: • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	Factors relevant to engaging in the service also included patients' expectations of mental healthcare services in general, and their needs. Focus groups noted that it is important to inform patients of what is required from them to set their expectations correctly. Regarding the needs, focus groups indicated that often the need for human contact was brought to the fore by the patients who rejected the ccVC service. *"Patients who refused the treatment said 'this has a lot to do with a machine, I need a person listening to me' (…) I [the healthcare professional] think they need a human contact."* *(2nd focus group Piemonte, guided cCBT + VC)* Professionals reported that for some patients, traditional psychotherapy, i.e. face-to-face, was commenced after using the ccVC service. *"All the patients I supervised...they are not so many...agreed to begin traditional psychotherapy afterwards."* *(2nd focus group Piemonte, guided cCBT + VC)*

A.1.3 Appropriateness to the VC facilitated service

This relates to aspects of appropriateness of the treatment to a certain patient. Who are more likely to benefit and who not?

Emerging topic and sources	**Description** *(quotes are in italics)*
Clinical symptoms	
Reported in 10 quotations from 4 out of 5 focus groups in: • Aragón (1 group with mental health specialists, n=4); • Badalona (1 group with mental health specialists, n=6); • Denmark (1 group with out-patient nurses and operation manager, n=3); • Piemonte (1 group with GPs and mental health specialists, n=9).	The participants in the focus groups were undecided regarding the patient group most eligible for receiving ccVC services. Some focus groups argued that severely depressed patients may have difficulties in managing this type of treatment, because severe symptoms include limited mental and cognitive capabilities, and often have a reduced social economic status with, as a consequence, reduced resources. *"I think that the severely depressive patients find it difficult to cope with this (…) If so already have reduced resources. Depression, it is totally impossible to start-up (…) we have seen that [mistrust], but not specifically for this project. But generally, in the severe depressive there can be mistrust if they are in the psychotic world where they experience being persecuted, paranoid or interpret."* *(1st focus group Denmark, guided cCBT + VC)* On the other hand, professionals also reported that this service is useful for all patients, but especially for patients with severe mental disorders. These patients quite often present problems of accessibility and communication, and it is very important for the mental healthcare professionals to know them in their environment. In addition, it was argued that using videoconference for mild or moderate cases might collapse the system technically. *"I think this system is more suitable for severe cases. It would be useful if at the end of the day we could use videoconference to explain the patient case to the specialist."* *(2nd focus group Badalona, guided cCBT + VC)* It seems that experiences with VC-delivered mental healthcare vary in terms of clinical appropriateness. However, professionals also indicated that already the initial assessment phase helped some patients to become aware of their problems. *"The initial assessment helps people to become aware ... they are not destined to lose against these difficulties."* *(2nd focus group Piemonte, guided cCBT + VC)*
Contextual factors	
Reported in 6 quotations in 3 out of 5 focus groups in: • Badalona: 1 group with mental health specialists (n=6);	According to the focus groups, appropriateness of the ccVC service also depends on contextual factors such as a patients' social environment and socio-economic status. Professionals indicated that most willingness is met in patients with a healthy spouse who can support the treatment – then, the treatment will be appropriate to offer to these types of patients. Also, the ccVC service seems to be appropriate for those who are employed.

Emerging topic and sources	**Description** *(quotes are in italics)*
• Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9).	*"Now I am also in gerontology, and where I met most willingness is among those who have a healthy spouse who has been able to support it." (1st focus group Denmark, guided cCBT + VC)* *"There are patients that we can define as more suited to this kind of service: people who work." (2nd focus group Piemonte, guided cCBT + VC)* However, it was also noted that the added stress from following treatment in combination with other responsibilities should be taken into account when determining the appropriateness of the service to a patient. *"When you are not feeling well, and there are many other things you also have to do when you are mentally ill, then this can seem completely unmanageable." (1st focus group Denmark, guided cCBT + VC)*
Skills, personality traits, and attitude	
Reported in 10 quotations in 4 out of 5 focus groups in: • Badalona: 1 group with mental health specialists (n=6); • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	In determining the appropriateness of a ccVC service for a patient, certain skills, personality, and attitude are found to be relevant by the participants of the focus groups. Certain combinations of skills and patient characteristics are thought to be important in determining the appropriateness of the service, primarily patient's mobility, ICT literacy, and age. Professionals indicated that VC could be appropriate for people with mobility problems, although many of them are older, and this generation is not very keen on this technology, and thus might require more support. Also, it was discussed that ccVC was primarily suitable for those who are familiar with Skype. For those who are unfamiliar with the technology, practitioners must be mindful of their reaction to the new experience, and coach them through it. If these steps are followed, cCVC is suitable for most patients, within reason. *"My experience is, the ones that are tech savvy... they're very positive about it. It's the ones that never experience it, the ones that are shocked and overwhelmed, they're very impressed by the ICT, and they can't believe what they're seeing. (…) I think you've just got to be mindful that you've got to have that bit of time to settle people down." (2nd focus group Wales, ccVC)* Some participants indicated that patients would not like the feeling of depersonalisation that the videoconference causes; others thought that it might be a useful tool for those patients who are embarrassed at going to a psychiatrist or a psychologist, and who would prefer to reduce the personal contact.
Treatment delivery	
Reported in 12 quotations in 3 out of 5 focus groups in:	Regarding delivery processes, the focus groups indicated that the videoconferencing technology is not good enough to apply these services in a general basis.

Emerging topic and sources	**Description** *(quotes are in italics)*
• Badalona: 1 group with mental health specialists (n=6); • Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	However, the use of VC in a collaborative approach, can increase quality in service delivery processes as it can avoid confusion of instructions from different professionals. More specifically, professionals reported that collaborative care facilitated by videoconferencing can be appropriate especially when used adjunct to cCBT services, with fixed scheduled meeting. According to the professionals, ccVC in combination with cCBT gave better results than cCBT alone. As such, focus groups suggested that ccVC should be considered as a tool to integrate various forms of mental healthcare. *"We noticed that the joint usage of the services [cCBT and ccVC] 'makes things go better'. Following patients is effectively done through videoconferencing and patients who accepted to use the videoconferencing are satisfied. (…) It should be seen as an integrative tool, not an exclusive form of treatment." (2nd focus group Piemonte, guided cCBT + VC)* Furthermore, it was noted that patients not using ccVC don't answer to phone calls either and it thus might be good to also include face-to-face contact with a person and tailor the 'right' treatment to the 'right' patient. *"We tried to follow the other patients, not using videoconferencing, by phone, but, it has been difficult because they don't answer to calls (…) importance of tailoring the "right" treatment for the "right" patient." (2nd focus group Piemonte, guided cCBT + VC)*

A.2.2 Adherence to the VC facilitated service

These are aspects related to the adherence of a patient to the cCBT and/or ccVC treatment. This includes reasons for 'no-show', drop-out, etc., and can shed light on missing information in the quantitative dataset.

Emerging topic	**Description** *(quotes are in italics)*
Technical aspects and user-friendliness	
Reported in 9 quotations in 2 out of 5 focus groups in: • Denmark: 1 group with out-patient nurses and operation manager (n=3);	Focus groups reported that most reasons to not completed sessions were due to unstable or not functioning ICT equipment, and unavailability of appropriate consultation rooms with equipment for the professional. *"The reasons we couldn't complete the follow up sessions was primarily down to logistics, you know ICT, facilities of the room." (2nd focus group Wales, ccVC)*

Emerging topic	Description *(quotes are in italics)*
• Wales: 1 group with therapists and practitioners (n=4).	It was discussed that if for example sound or video was not functioning properly in a ccVC facilitated consultation, professionals found it easier to switch to telephone or even 'normal' practice. Professionals had to stop or delay the ccVC treatment, and some indicated to be satisfied with phone-mediated service delivery as well. *"If the technique does not work and cannot be installed easily, then it will not work (…) It has been relevant here. For example, one time there was no sound, and the second time you could not see each other, so it ended up that the patient came in for an interview instead. Her treatment continued in the 'normal' way (…) This patient is very comfortable and satisfied with the service he can get on the teleconference (phone)." (1st focus group Denmark, guided cCBT + VC)* On the other hand, it was also noted by the professionals that some patients found the process of seeing the technology in action humorous, for example incorrect camera positioning, and as a consequence were put at ease. *"(…) and when you've gone online and there's only a bit of a head showing, and you needed to move the computer to get it all in, they find it very, very humorous, they don't find it frustrating at all, they're amazed by it." (2nd focus group Wales, ccVC)*

A.3 Domain 4: Healthcare professionals' perceived acceptability of MasterMind services in routine practice

A.3.1 Appropriateness of the service

Emerging topic	Description *(quotes are in italics)*
Treatment delivery	
Reported in 14 quotations in 6 of 6 focus groups in: • Aragón: 1 group with mental health specialists (n=4); • Badalona: 1 group with mental health specialists (n=6);	Focus groups reported that there is a high workload burden in mental healthcare, and some patients cannot receive the level of attention at the specialised mental healthcare units they might require. The VC services can act as a filter for the MHUs, and it includes additional information about how the patients are evolving through the primary care teams. In addition, the professionals reported that VC has the potential to improve communication between the various professionals involved. *"There is a bi-directional communication which is very useful." (1st focus group Aragón, guided cCBT + VC)* However, participants also indicated that the doctor-patient relationship has yet to change – perhaps culturally - in order for this system to be appropriate for patients and professionals to apply on a large scale. This applies to the relationships

Emerging topic	Description *(quotes are in italics)*
• Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9); • Treviso: 1 group with psychologists (n= 5); • Wales: 1 group with therapists and practitioners (n=4).	between professionals as well. Participants also reported that changes in work flow and organisation are required, e.g. professionals should apply a certain frequency in using the ccVC service. *"Yes, it must be a new routine, a new workflow." (1st focus group Denmark, guided cCBT + VC)* To allow for more use, better diary management is required, as it remains difficult to schedule online appointments with patients and various professionals during office hours. According to GPs, the face-to-face visit is better, quicker and easier, as they lack time during their office practice and they are scarcely available for new services such as ccVC. Also, professionals indicated that the screening and data entry takes more time when using new services such as ccVC. *"At the beginning, the service [ccVC] was expected to put in communication between GPs and specialists, but working times prevented this use, that has been modified, and some patients did supporting it [ccVC service] between patient and us specialists." (2nd focus group Piemonte, guided cCBT + VC)* *"The screening part takes time. Data entry takes more time, and this is also true for VC; this could lead the doctor to delegate these activities." (1st focus group Treviso, guided cCBT + VC)* *"The [care service] manager has tried VC with GPs, it hasn't been easy to come to an agreement, and then we encountered difficulties in giving the word. We must evaluate which are the objectives, if we know that there is a return, for example if some meeting have been scheduled, then we can organise a session." (2nd focus group Piemonte, guided cCBT + VC)* From the primary care team perspective, professionals reported to be careful with VC services as they could be used by patients in an improper way to discuss their diseases, while the patients' situation requires a face-to-face visit for optimal care. As such, ccVC must be limited to a specific objective and not seen as a general purpose. *"(…) I consider the service good as a tool for you [care manager] as you support patient. It's a dangerous tool as the next step could be to ask for an online visit. If the patient has to come to the surgery, we ask him/herself before if it's worthwhile. The need is defined by the offer!" (2nd focus group Piemonte, guided cCBT + VC)* Professionals in the focus groups also reported they found it inappropriate to use the VC services with more than one patient at a time, as they suppose they could have privacy issues: in a group, psychotherapy patients are aware, and their participation is consensual. In small communities, this has not been seen as feasible due to e.g. issues with stigmatisation. *"We [professionals] didn't do VC sessions with more than one patient at a time. There are privacy issues. When patient enters the website [iFightDepression] he/she realises he/she is not alone. But it's different to coming back to the surgery and having to tell other patients directly that they have such problem, we preferred to avoid this. In a group,*

Emerging topic	Description *(quotes are in italics)*
	psychotherapy patients are aware this is a group therapy. Consider also that in small communities, people know each other." (2nd focus group Piemonte, guided cCBT + VC)

A.3.2 Engaging in the service

Engaging in treatment relates to the decision of a professional to deliver the ccVC facilitated mental health service.

Emerging topic	Description *(quotes are in italics)*
Expectations and needs	
Reported in 13 quotations in 5 out of 5 focus groups in: • Aragón: 1 group with mental health specialists (n=4); • Badalona: 1 group with mental health specialists (n=6); • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	Focus groups reported that professionals need to make an investment in time to make services such as ccVC become a normal part of their practice. Currently, professionals spend all their time on clinical work (i.e. production), and have no time to get acquainted with new services, and to make the necessary adjustments to make them part of their practice. *"Lack of time often hinders the continuity of these projects." (1st focus group Aragón, guided cCBT + VC)* *"In order to use this system, specialists and the GPs would need more time in their diaries." (2nd focus group Badalona, guided cCBT + VC)* *"My working week is so pressed that I do not want to experiment with it [the service]. ...it must not require more (time), and then it should be simple and easy to use." (1st focus group Denmark, guided cCBT + VC)* Next to resources such as time, professionals participating in the focus groups also indicated that the systems need to be easy to use and reliable. It is important to standardise the procedures to use it effectively. *"I need it to be easy, and can trust that the technique works, so I do not have to run around between our function leader, some technicians and our IT department. So I do not bother." (1st focus group Denmark, guided cCBT + VC)* *"Having a standardised procedure.... run through it a few times so you're confident in what you're doing." (2nd focus group Wales, ccVC)* Focus groups also reported that for a professional to engage in the ccVC service, it is necessary to change the mentality of professionals, as some are not familiar with VC. *"Professionals need to see the benefits more clearly, such as higher patient satisfaction, and savings in time." (2nd focus group Badalona, guided cCBT + VC)*

Emerging topic	Description *(quotes are in italics)*
Support	
Reported in 5 quotations in 2 out of 5 focus groups in: • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Wales: 1 group with therapists and practitioners (n=4).	Focus groups reported that dedicated support and training is required to facilitate engagement of professionals. If support is limited or non-existent, professionals will either abandon the service, or find their own way to engage with the system, which might not always be optimal. *"Dedicated ground support was non-existent unfortunately so I think we kind of just plodded on in our own little way. (…) Yes I would never have logged on if you hadn't have been on the phone saying "Press this button, do that."* *(2nd focus group Wales, guided cCBT + VC)* It was suggested that having champions can be supportive in engaging with the ccVC services. *"Right now will be trained super users, which is almost always present in the house and that can help with things. And then there is the option to call support for telecommunications psychiatry [the cCBT and ccVC research centre] if knowledge is not enough."(1st focus group Denmark, guided cCBT + VC)*
Training and education	
Reported in 7 quotations in 3 out of 5 focus groups in: • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	The focus groups reported that a quick-start manual can enhance engagement of the professionals in the ccVC service. This manual should cover both installation and running VC for both professionals and patients. *"We have held some initial meetings, and made a manual which simply describes in point form what you have to do when you start. We have done this simply because, for us, time passes from the introduction to when we are going to use it - and then you become rusty." (1st focus group Denmark, guided cCBT + VC)* Participants also indicated that experience with using the systems can be a factor in engaging with the service, as this enables familiarisation with the equipment and with conducting clinical conversations through VC. *"I need some frequency in using it."(1st focus group Denmark, guided cCBT + VC)* For one-to-one communication between professionals, it is not necessary to use VC. Also, for more connections, professionals indicated to be in need of training and support to be able to truly implement the services into day-to-day care. *"[The VC services] may be used to communicate among us, an advantage of more simultaneous connections, education is needed on how to use it. In the one-to-one communication, if I have to discuss with the specialist, it makes more sense to phone each other, I didn't find an added value in one-to- one relationship. From a practical point of view, telephone is more comfortable." (2nd focus group Piemonte, guided cCBT + VC)*

Emerging topic	Description *(quotes are in italics)*
Technical aspects and user-friendliness	
Reported in 6 quotations in 3 of 6 focus groups i: • Treviso: 2 groups with psychologists and GPs (n=5 & 7); • Wales: 1 group with therapists and practitioners (n=4).	Engaging in mental health services facilitated by VC was considered to be dependent mostly on technological reliability and usability. Professionals reported that the technologies used up until now were considered not satisfactory in terms of usability. This limitation was clearly highlighted by making comparisons with other communication tools such as WhatsApp or Skype. The ICT infrastructure must be strengthened to facilitate the future growth in the use of the ccVC service. *"...if you were connecting through a VPN then the line breaks, it cuts off every 10 seconds, so we had to send a calendar appointment, Skype meeting through the calendar then the connection was much better (…) it's ultimately an ICT project, and heavily reliant on the ICT infrastructure... you often have to rely on the times when some of the rooms which had ICT facilities were vacant." (2nd focus group Wales, unguided cCBT + ccVC)*

A.3.3 Satisfaction and usability

This relate to aspects such as the meaning of delivering the services in routine practice in terms of the extent to which the ccVC services are usable and satisfying expectations, roles, and responsibilities.

Emerging topic and sources	**Description** *(quotes are in italics)*
Experience and use	
Reported in 14 quotations in 4 of 5 focus groups in: • Badalona: 1 group with mental health specialists (n=6); • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9);	Professionals indicated that in determining acceptability of the services, patient satisfaction is a key factor. They indicated that those who did engage with ccVC were often satisfied with the system. *"...patient satisfaction first of all, and how that can impact on how satisfied we are with the system set up" (2nd focus group Wales, unguided cCBT + ccVC)* For the professionals' point of view, user-friendliness was named as an important factor in determining the acceptability of the service. *"I think as a worker personally, ease of use." (2nd focus group Wales, unguided cCBT + ccVC)* Satisfaction with and usability of the ccCV as a service was reported by the focus groups, depending on the maturity of the technology applied; maturity in terms of reliability and stability of the platform. Some professionals reported that there

Emerging topic and sources	**Description** *(quotes are in italics)*
• Wales: 1 group with therapists and practitioners (n=4).	were not many problems with the technology, although this might have to do with appropriate technical support to keep the services running. *"I could live without, [laughter]. It has not put me down, I am not impressed."(1st focus group Denmark, guided cCBT + VC)* In addition, it was argued that it is very important that the quality of the sound and the image are high. Focus groups agreed that in this sense, the systems need more development before they can be truly useful to professionals. Professionals do see potential in ccVC, but they are not completely satisfied and convinced that this service is better than traditional face-to-face visits because of the technical challenges, including the ICT literacy of the professionals and patients themselves. *"My hope is that it (ccVC service) can be a good addition in the long term, when hopefully we have become better at using it and the technical difficulties are overcome."(1st focus group Denmark, guided cCBT + VC)* *"Current patients do not use ICT, it will take some years until everybody will be able to communicate using these technologies (...). In some neighbourhoods, 80% of people over 65 years do not own a mobile phone. Even some people around 40-50 years have difficulties with ICT." (2nd focus group Badalona, guided cCBT + VC)* One concrete problem of ccVC is bandwidth. It is crucial to have a connection that can transfer sound and video without a time lag. *"For health professionals using the VC, good bandwidth is important, as it's very embarrassing to ask patients to repeat, while, for example, they are crying on the other side."(2nd focus group Piemonte, guided cCBT + ccVC)*
Treatment options and process	
Reported in 32 quotations in 4 out 5 focus groups in: • Aragón: 1 group with mental health specialists (n=4); • Badalona: 1 group with mental health specialists (n=6); • Piemonte: 1 group with GPs and mental health specialists (n=9);	Regarding the treatment processes and care pathways, VC is seen by professionals as usable and satisfactory. It improves communication between primary care professionals and specialists. Before Mastermind, this kind of interaction was made by telephone, but without a protocol like the one designed for the project. This kind of interaction was more difficult to handle, as it was complex to synchronise the professionals, and to share the information synchronously. *"There is a bi-directional communication which is very useful (…) the problem of phone calls is that the access is more difficult, it is something spontaneous, not organised ... the videoconference is more complete and integrated." (1st focus group Aragón, guided cCBT + VC)* Focus groups also reported that the VC service is useful for shared decision making, and to guide patients' needs and to send a uniform message to the patient enhancing patients' confidence in the care they receive.

Emerging topic and sources	**Description** *(quotes are in italics)*
• Wales: 1 group with therapists and practitioners (n=4).	*"They [patients] perceive the service as quality in the care. It gives them confidence (…) they think 'they [professionals] are interested in me, they speak about me'. Our patients feel that they are more listened to, more protected, better cared for. They detect that we have a good communication." (1st focus group Aragón, guided cCBT + VC)* In terms of treatment processes, the use of ccVC can also enhance efficiency. For example, in those sites where professionals provide sessions in different geographic areas, this can be done at one time, which has proved to be useful to save time and reach a bigger audience. However, this system seems more suitable for informing than for interacting. *"We are avoiding a long trip to some people." (1st focus group Aragón, guided cCBT + VC)* *"I mean it saves you time as well travelling (…) if you're saving money in the long run, that money will come back and reap the rewards in a different way, i.e. the consultant will have more time to spend with other patients." (2nd focus group Wales, unguided cCBT + ccVC)* However, professionals indicated that collaboration through VC requires some flexibility from the participants in terms of making appointments. Focus groups reported that the service can be considered more usable when it is part of a more complex treatment that requires strict management and supervision by one or more doctors. On the other hand, for professionals a genuine therapeutic relationship is important, and the possibility of integrating this service in a more structured standard intervention. *"The ccVC service of MasterMind can be considered more usable when it is part of a more complex treatment, strictly managed and supervised by one or more doctors. It is a very promising tool to be used for psycho-educational and information purposes, but always bear in mind the importance of a genuine therapeutic relationship and the possibility of integrating this service in a more structured standard intervention." (2nd focus group Piemonte, guided cCBT + VC)* It was suggested that the ccVC service can be used for maintenance sessions, to continue to monitor patients' condition over time, and possibly prevent relapse. *"This service is even more usable if maintenance sessions could be planned every now and then, in order to continue to monitor patients' condition over time, and detect possible relapses early." (2nd focus group Piemonte, guided cCBT + VC)* However, it was noted that in certain sites, in order to integrate the ccVC service into regular (collaborative) care, the perspective of professionals towards new technology should be addressed. *"To increase the usability of this kind of service, the "traditional" perspective of doctors should change: traditionally, [Italian] doctors treat patients with drugs and "talking cure" in the same room, and are not very open to innovative services or treatments." (2nd focus group Piemonte, guided cCBT + VC)*

Emerging topic and sources	**Description** *(quotes are in italics)*
Outcome	
Reported in 7 quotations in 2 out 5 focus groups in: • Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	Focus groups reported that in determining the acceptability of the ccVC service in terms of satisfaction and usability, factors related to the clinical outcomes of the services are also important. The ccVC service can be used effectively to empower patients by changing patients' perspective on their health and wellbeing. Professionals reported that they see that patients experience an increased level of overall wellness when commencing the ccVC service. *"Change patients' perspective: supporting people in seeing that for example the physical symptoms he/she frequently reports to the GPs are actually part of a depressive syndrome (…) increased level of wellness reported by patients who used it." (2nd focus group Piemonte, guided cCBT + VC)* Or as one focus group reported: *"Service can be considered effective if it increases patient's awareness of the origins of their symptoms, and if it allows patients to take into account other possible treatments, e.g. drugs, more intense psychotherapy sessions, etc..." (2nd focus group Piemonte, guided cCBT + VC)*

A.4 Domain 5: Economic aspects

A.4.1 Cost savings

Emerging topic	**Description** *(quotes are in italics)*
More evaluation needed	
Reported in 15 quotations in six locations: • Aragon; • Basque Country; • Denmark;	More evaluation was needed to assess whether the implementation of the interventions had produce savings. Respondents stated that evaluation in this sense was not possible for the moment, as costs have not been analysed. *"It has not been possible to show an effect yet, as more data is requested in order to make the best possible calculation of the costs, which is a complicated equation." (Denmark)* *"Cost reduction would be great, but we cannot observe it, and it is not methodologically assessable yet. This question has to be answered in a next step." (Germany)*

Emerging topic	Description *(quotes are in italics)*
• Germany; • Piemonte; • Treviso; • Wales.	*"We don't have data … I know how much it cost us, but I still don't know the benefits we have gained, what we have saved in appointments, I have no data to offer an opinion." (Basque Country_2)* Some participants had the perception that the implementation of these services could imply savings. *"The economic saving of the project is not immediately quantifiable, but it can definitely have an impact on social spending. The MasterMind project might be able to make investing the available financial resources better." (Treviso)* *"Early information indicates there have been some savings such as fewer appointments for GPs and community psychiatric nurses." (Wales_2_cCBT)* Nevertheless, this perception was not unanimous. *"cCVC has not been so successful in terms of savings; there could have been more savings due to the geographical area of Powys; however, it feels more like ccVC is in the experimental stage rather than the final version." (Wales_1_ccVC)*
No savings	
Reported in 11 quotations from three locations: • Denmark; • The Netherlands; • Scotland.	Even if it seemed difficult to assess cost and efficiency at this stage of the process, some sites reported that they have not observed any savings. *"There are no savings, only costs for the applications, development, time and transfer of knowledge." (The Netherlands)* *"No cost saving has yet been observed, however cCBT service is an enhancement to the service in that it is an addition to the existing service rather than an 'instead of' option." (Scotland)* *"No, I have not observed any resource savings. There is an increase in the demand for healthcare, but it is difficult to assess whether this has taken some off the top or not - nor whether it has expanded the audience for hospital treatment." (Denmark)* Some sites considered that the implementation has been more expensive that the current common care. *"The first calculations showed that the costs of these services, in isolation, were significantly more expensive than the equivalent model for the private practice." (Denmark)*
Costs sources	
14 quotations from three locations: • Denmark; • The Netherlands;	Time was the most mentioned resource needed. Time was needed both for patients and for eHealth learning and updates. Costs also related to software and apps, equipment, and human resources, development and transfer of knowledge. *"Position is that the healthcare professionals should use the time that is necessary, they should not think of the economic aspect, or feel pressure to reach a certain number of services." (Denmark)*

Emerging topic	Description *(quotes are in italics)*
• Scotland.	*"The healthcare professionals have been allowed to spend more time, because this treatment is in development." (Denmark)* *"It is something new, and if we do not create a space in which extra time can be used, we do not get them on the train. A part of this strategy, to motivate them to take it in as part of their everyday, is also to pay our departments in order of activities - they get something (money) for each activity they are doing." (Denmark)* *"I have chosen to put some money into the project and prioritise it the way that we do not spend money on staff, but to expand the technology and licensing, which is astoundingly expensive." (Denmark)* *"There are no savings, only costs for the applications, development, time and transfer of knowledge. Everything costs money, both in manpower and in resources. Buying equipment for videoconferencing was very expensive. And providing the teams with the right equipment is not enough to actually use it." (The Netherlands)* *"In every study you read, and we hear it from the therapists as well, time is an important factor. They need time to explore eHealth. It's interesting, but also a difficult issue." (The Netherlands)* *"The insurance companies think that eHealth brings more efficiency in our therapies, and so far this is not the case. Insurance companies give perverse incentives in punishing the mental health organisations for the length of their therapies, while they have to make investments in order to implement eHealth, without cost savings in the short run. Insurance companies should reward instead of punish." (The Netherlands)* Additionally, the services had not replaced any service at the moment of the interviews, so they were not reducing other costs.
Potential savings	
Reported in 12 quotations in four locations: • Aragon; • Denmark; • Piemonte; • Wales.	Interviewees mentioned some possible sources of savings. The main one was that more patients were being treated with the same resources. *"I think because we've got patients through which would not otherwise have received treatment. So if you look at it economically, I think we have made some gains on it." (Denmark)* Participants stated that innovation contributes to ease work and to save time. And that they had appreciated some savings in indirect costs. *"…fewer appointments at the GPs etc. Fewer follow ups with the CPN, so I haven't physically seen the evidence of that, but the early information that I saw would certainly indicate that there have been some savings." (Wales_2_ccbt)* *"Anyway we can appreciate savings in terms of indirect costs." (Piemonte_2_ccbt+ccvc)*

Emerging topic	Description *(quotes are in italics)*
Lack of resources Reported in 8 quotations in two locations: • Aragon; • Wales.	Lack of resources was mentioned as a factor hindering the implementation of the services. Human resources not only for this initiative but for the whole mental health services were scarce. Some human resources were needed to give support and help to patients. *"In Mental Health, we do not have many resources neither professionals." (Aragón1)* Technological resources and infrastructure were also needed. Participants state that in some cases practical issues such as room availability and Wi-Fi were an obstacle to implementation. Issues with Wi-Fi and room availability sometimes meant it was easier o use face-to-face therapy. Also some patients lacked technological resources. *"We always had issues with the rooms where we didn't have internet or broadband, or trying to book a room." (Wales_1)*

A.4.2 Economic sustainability of services in routine practice

Emerging topic	Description *(quotes are in italics)*
Reasons for maintaining the services	
Reported in quotations in five locations: • Aragon; • Badalona; • Piemonte; • Treviso; • Wales.	The most mentioned reason for maintaining the services was that it could be efficient and does not need many additional resources. *"So far, the professionals claim that the service is efficient, as it helps them to prevent avoidable consultations." (Aragón_2_ccvc)* *"Moreover, the costs are not high." (Badalona_1_ccbt+ccvc)* *"Using this programme should not require more time than the time the professionals usually employ treating these patients, so it could be incorporated naturally into everyday practice." (Basque_Country_1_ccbt)* *"Given demand on resources, there is evidence that cCVC works in rural areas such as Powys." (Wales_1_ccvc.pdf)* The expectation was they would be able to treat more patients with the same resources. Additionally, services could cover a larger area providing more accessible treatment.

Emerging topic	Description *(quotes are in italics)*
	"We have a clear expectation that it will promote the availability of treatment for our patients. We have a geographically large area. In relation to the department's outcome, I expect that we can offer treatment to more patients for the same resources." (3) (Denmark) *"I assume that it is not much more efficient, but it will of course imply that you can treat more patients with the same amount of resources. It will also give a more modern and accessible psychiatry." (2) (Denmark)* *"I think because we've got patients through who would not otherwise have received treatment. So if you look at it economically, I think we have made some gains from it." (Denmark)* Quality of the programme was also signalled as a reason for maintenance. Quality referred to technology, transportation, organisational issues, or avoiding external referrals. *"The citizen perceives more quality in the care thanks to the use of technology, and it benefits also by reducing the number of journeys due to consultations." (Aragón_2_ccvc)* *"The implementation of cCBT helps the organisation." (Badalona_1_cCBT+ccVC)* *"Quality of the service: objective information to schedule consultations, not based on fixed periods or gaps in the agenda, fewer trips and better care for patient." (Aragón_2_ccVC)* Some also stated that the services are effective and able to treat previously untreated patients. *"For us the main important reason for keeping cCBT is that we think and we are sure that it's a tool that helps better treat these patients that up till now we felt were undertreated." (Badalona_1_cCBT+ccVC)* A reason for sustainability was the belief that the programme is effective, and provides an added value for patients. *"We offer these services because we can vouch for an effect - that they are powerful patient-level." (Denmark)* *"Difficult trade-off if tele-services are costly or more expensive, but it seems effective, and provides an added value for some patients." (Denmark)* *"It fulfils a task better than we do today in these circumstances for these people. (Denmark)* Another reason mentioned for maintaining the services was that they can contribute in improving the public image in relation to mental health services regarding effective and efficient use of resources, and reception of innovative and quality services. *"Treatment of more patients for the same amount of resources, and more accessibility and flexibility, might have a positive impact on the organisation's public image." (Denmark)*

Emerging topic	Description *(quotes are in italics)*
	"Difficult to answer, a hope is that the department has an image about being fast in adopting new technologies in use, and having a commitment to ccVC and telemedicine in general." *(Denmark)* *"I assume that everyone gives good treatments, but I do think there is a difference and how it comes across to a patient. I hope as a patient you notice that a protocolled treatment with use of internet modules is very focused, there is a purpose and a clear roadmap."* *(The Netherlands)* *"I would think, as a patient, that would give me a feeling of good quality that is delivered to me.* *(The Netherlands)* *Positive impact of cCBT/ccVC services on the ASLTO3's public image."* *(Piemonte_1_ cCBT+ccVC)* *cCVC can have a positive impact for the organisation, younger clients are more familiar with the technology.* *(Wales_1_ccvc)*
Improvements needed to maintain the service	
Reported in quotations in five locations: • Aragon; • Basque Country; • Treviso; • Turkey; Wales.	Participants mentioned many issues that could hinder the maintenance of the services. For example, interviewees stated that the programme needs to prove its efficiency. *"It is necessary to demonstrate the efficiency of the service in order to maintain it."* *(Aragón_2_ccVC)* Future funding was unclear, so maintenance of services depended on the possibility of sustaining it with the available resources or other financial sources. Lack of human and technological resources also needs to be taken into account.

A.4.3 Business case

Emerging topic	Description *(quotes are in italics)*
Building a business case	
Reported in quotations in six locations: • Aragon; • Badalona; • Basque Country;	Participants mentioned some economic reasons that could build a business case. They stated that the interventions had not been expensive, seemed efficient, and could be absorbed in the daily work of the institution. *"From the technological point of view, there is no need for additional investment to deploy this service."* *(Aragón_2_ccVC)* *"This service is a tool for efficiency. We can't get rid of this type of tools."* *(Aragón_2_ccVC)* *"They are integrated in the business model and in our organisation."* *(Aragón_2_ ccVC)*

Emerging topic	Description *(quotes are in italics)*
• Piemonte; • Treviso; • Wales.	*"The infrastructure is very cheap to maintain because cCBT is a web-service." (Badalona_1_ cCBT+ccVC)* *"I think the business case is not just through savings in monetary terms, but also savings in efficiency; I could reduce the waiting lists and see more patients." (Wales_1_ccVC)* Some participants considered that the continuity of services was guaranteed in their sites. *"Funding and continuity are guaranteed." (Aragón_2_ccVC)* *"Funding strategies are currently in place to sustain cCBT/ccVC services in practice." (Piemonte_1_cCBT+ccVC)*
Maintaining services and funding strategies still under evaluation	
Reported in 18 quotations from two locations: • Denmark; • Scotland.	Most of the discussions related to the fact that the project was still being evaluated. *"The discussion we will have is that we say that we saw it's possible with patients. Now we have to formulate a sensible business case [...] I have to have a clear perspective how an attractive and growable business case can be built. We do not have that clear right now." (Germany)* Some locations did not have a clear position about maintaining services. The continuation of MasterMind depended on its development. *"It is unclear if we will pursue MasterMind, or if we start something completely new. If we had a better idea with regard to online therapy, we were ready to dismiss the MasterMind concept." (Germany)* The main problem for building a business case was that funding strategies were not clear yet. In some locations, only short term funding was guaranteed. *"A decision has been taken about keeping the cCBT service implemented until 2018, when it will be discussed again. But it is postponed for a year, so it will probably be allowed to run until 2018 before the final decision is taken." (Denmark)* Financial options were being considered in some sites, but a final decision had not been taken. *"We have actually introduced a billing model in RSD for telecommunications psychiatric services, and actually it is a double billing. Then, the economy problem should be solved." (Denmark)* *"Some money must be found to pay for this, unless it will be placed in the category called 'quality improvement', as then money will automatically be given from the system." (Denmark)*
No Business Case	

Emerging topic	Description *(quotes are in italics)*
Reported in quotations from two locations: • Denmark; • The Netherlands.	Doubts were expressed regarding the viability of building a business case at the moment. Participants from the Netherlands saw no possibility of building a business case. *"There is no business case for eHealth, it means that the implementation is in the phase of making investments without financial revenues. At the moment eHealth is an extra product. The investments do not outweigh the revenue and the health insurance companies have a big say in this. eHealth treatments are until now temporarily reimbursed, but in the next few years it is expected that this will be less and less." (The Netherlands)* *"In production terms, I do not have a shorter duration of treatment and the costs are increasing. And first I must invest costs by giving certain people within the teams and ICT extra hours, and I do not get income for that. It is a perverse incentive of the healthcare insurance companies who see it as a cost saving, while it is not." (The Netherlands)*

A.5 Domain 6: Organisational aspects

A.5.1 Perspectives on implementation (professionals)

Emerging topic	Description *(quotes are in italics)*
Implementation process	
Reported in 23 quotations in 5 out 5 focus groups in: • Aragón: 1 group with mental health specialists (n=4); • Badalona: 1 group with mental health specialists (n=6); • Denmark: 1 group with out-patient nurses and operation manager (n=3);	Professionals in the focus groups acknowledged the value of ccVC, and indicated that it should be included in routine practice. According to the professionals, implementation is feasible, and does not require much investment. *"It would be really great to convert it into an ordinary care activity (…) it is useful, it does not require too much investment (…) it is a matter of organisation and of material (not so many) and human resources."* *(1st focus group Aragón, guided cCBT + ccVC)* However, professionals discussed the importance of support from management, indicating that it should not be an isolated and temporary activity. It was stated that it is important to have clear leadership to ensure the innovation is implemented and maintained. *"Professionals must feel that there is support, that it is an ordinary activity and not an isolated initiative of a service."* *(1st focus group Aragón, guided cCBT + ccVC)*

Emerging topic	Description *(quotes are in italics)*
• Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	*"...we don't want to lose the momentum now, in the past ... that just sort of disappeared and you think "that could have been really useful to use" but it didn't have that sort of leadership to implement it, that's what it needs to make it happen." (2nd focus group Wales, unguided cCBT + ccVC)* However, it was noted that management and leadership should be aware of the rationale for implementing these kinds of services to put the professionals in their professional strength. *"It is far too controlling of what is reasonable ... where we [professionals] know what is good, we need to be rationally controlled by what provides services and what counts at the right statistics. So we use our forces completely wrong." (1st focus group Denmark, guided cCBT + VC)* Time as a resource was mentioned by the focus groups, in that professionals experience lack of time as a barrier, for example, to help patients installing the programme. Participants stated that the main problem is the lack of time and motivation for professionals to try these new tools, and to implement them in their treatments. In that respect, the availability of technical support is of eminent importance, especially during the implementation phase. Even if technical aspects were solved, these elements could still be an issue. *"If we had all the required technology, GPs, specialists and patients, would we use the system? I think that we would still lack time and motivation. Without these three factors: technology, time and motivation, the implementation would not be successful." (2nd focus group Badalona, guided cCBT + ccVC)* As a suggestion, participants indicated that a local champion in applying and using the ccVC service might help promote the service *"...need a like a locum or a champion, somebody who invests a lot of time and is enthusiastic about these services with the time to do that." (2nd focus group Wales, unguided cCBT + ccVC)* Factors that are identified to be related to the implementation processes include the time that both professionals and patients require to get more familiar with ICT as a tool. *"I think that the time is conducive [facilitating], when there will be more professionals and patients who are more familiar with ICT as material [tool]. In ten or twenty years, when we have patients who have grown up with this stuff [ehealth technology], then some things are common knowledge, which it is not for me." (1st focus group Denmark, guided cCBT + VC)*
Referral and treatment processes	

Emerging topic	**Description** *(quotes are in italics)*
Reported in 23 quotations in 4 out 5 focus groups in: • Aragón: 1 group with mental health specialists (n=4); • Badalona: 1 group with mental health specialists (n=6); • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Piemonte: 1 group with GPs and mental health specialists (n=9).	In using the ccVC services, professionals active in primary care (e.g. GPs) indicated to be satisfied with the service. Especially when the services reduce case-load, use in practice most likely will increase. Professionals also indicated to have good experiences with patients when the service is offered at no cost to the patients. *"For us (GPs) it is really satisfactory, and we wish it could be the same with other specialties. It is very rewarding."* *(1st focus group Aragón, guided cCBT + ccVC)* *"If these services impact positively on doctor's case-load, this will facilitate hugely their adoption (…) very good that the treatment is free for patients." (2nd focus group Piemonte, guided cCBT + ccVC)* However, it was noted that patients should not be urged to make a decision for treatment in the first consultation. One of the reasons is to reduce anxiety to engage in these types of services and reduce potential drop-out. Participants indicated that patients might have the feeling that the services are 'sold' to them, indicating that there might be a general distrust to receiving care through videoconferencing. It was argued that if patients receive information material, and can think it over for discussion in the next consultation, then the ccVC service might be less scary to patients. *"They close down when I start presenting the brochure, so actually, it requires much explanation (…) I [professional] have also avoided that it [whether they want the ccVC treatment or not] had to be decided at the first consultation, but given them information material to take home, and then we could talk about it at the next consultation."* *(1st focus group Denmark, guided cCBT + VC)* *"Patients who accepted to use the [ccVC] service with a care manager are few, somebody decided and then dropped out, because of an inner aversion towards the visual distance tool." (2nd focus group Piemonte, guided cCBT + ccVC)* Professionals also indicated that the technical requirements to effectively use the ccVC service can be a barrier for patients. In addition, the patients' mental state can prevent engaging in new things like ccVC. This needs to be discussed at referral. *"That they [the patient] have an iPad or Windows... what do they need? There are some demands, and those they cannot meet. It already stops here (…) they do not have this internet connection and computer equipment required to use this program Jabba (…) If you are poor and have low capacity, then you do not want to tackle this - something new."* *(1st focus group Denmark, guided cCBT + VC)* Another problem is that in the field of mental health, it is very common that the specialist is a private professional. If the professionals belong to different institutions, coordination and scheduling of videoconferences might be harder. Professionals indicated that VC has little added value in a collaborative setting if there are only two participants. *"In the relationship with the specialist, it makes more sense to phone each other, I [GP] didn't find an added value in using the service for the one-to-one relationship." (2nd focus group Piemonte, guided cCBT + ccVC)*

Emerging topic	Description *(quotes are in italics)*
	In addition, it seemed too complicated to the professionals that the system might work for group therapy, in which professionals have to keep the interest and the attention of patients in order for this therapy to work. It seems unlikely for this to succeed if the professional is not there to interact with patients.
Technology	
Reported in 14 quotations in 6 focus groups in: • Badalona: 1 group with mental health specialists (n=6); • Denmark: 1 group with out-patient nurses and operation manager (n=3); • Germany: specialist therapists (n=8); • the Netherlands (specialist therapists (n=7); • Piemonte: 1 group with GPs and mental health specialists (n=9); • Wales: 1 group with therapists and practitioners (n=4).	Participants of the focus groups discussing barriers and facilitators to implementing ccVC in routine practice indicated that the VC technology is currently experienced as a barrier. This includes the technology used, but also the availability and adequacy of infrastructural conditions by which the services are running, such as internet connection, PCs, cameras, etc. For example, low bandwidth cause poor session conditions, so that the professional switches to using the telephone, resulting in a time loss. *"When it [the technology] is more simple and reliable, then it promotes the use, too."* *(1st focus group Denmark, guided cCBT + VC)* *"Sometimes it is just annoying when in the middle of an important point the internet connection is weak or you only see a frozen image." (1st focus group Germany, guided cCBT + VC)* *"It is very important to have the system at the work place, and that the system is easily accessible, without technical problems, and beneficial in terms of time-saving." (2nd focus group Badalona, guided cCBT + ccVC)* *"It would have to be ICT support, connections, accessibility, and also the connections, we haven't got the broadband to do this from everywhere. (…) support around ICT and ... buildings that we can actively use."* *(2nd focus group Wales, unguided cCBT + ccVC)* *"This tool is vitiated by an infrastructure lack of local bandwidth. Time of movement saved by VC has been used to try to hear each other in a session. This instrument would be very useful to substitute face-to-face meetings, that require moving times and costs, but it's strongly vitiated by a lack of bandwidth at the institute. Using a tablet, it was a little bit better. It's a problem of organisation and technology." (2nd focus group Piemonte, guided cCBT + VC)*
Training, information, and education	
Reported in eight quotations in 3 out 5 focus groups i:	Focus groups reported that they experience that professionals often do not understand the full potential of the system. Furthermore, professionals indicated not to be knowledgeable enough to use the program and to guide the patients in using ccVC services. Also, limitations in basic ICT skills, and having the right equipment, are important factors to take into account when

Emerging topic	Description *(quotes are in italics)*
• Denmark (1 group with out-patient nurses and operation manager, n=3); • Piemonte (1 group with GPs and mental health specialists, n=9); • Wales (1 group with therapists and practitioners, n=4).	implementing these services in routine practice. Information and training need to be provided to inform the professionals on what to use ccVC for and how to operate it. *"Clinicians need to know the system is there, that they're allowed to use it with other professionals, and other things." (2nd focus group Wales, unguided cCBT + ccVC)* *"I'm just not good enough, for example, to guide patient (…) We cannot spend hours to help the patient installing it for them."(1st focus group Denmark, guided cCBT + VC)* *"Basic informatics skills, and informatics resources available such as, computers, tablet, smartphone, etc..." (2nd focus group Piemonte, guided cCBT + ccVC)* *"We professionals have had a visit from the ICT people and received a course of one hour. I think we should know how to do, but I think just to get the program into our iPad, to get things to talk together and work, right there, we have had so many challenges." (1st focus group Denmark, guided cCBT + VC)*

A.5.2 Factors hindering and fostering implementation - Leadership engagement

Emerging topic	Description *(quotes are in italics)*
Commitment	
Reported in 12 quotations in 5 out 6 interviews in: • Aragón (n=1); • Denmark (n=1); • the Netherlands (n=1); • Piemonte (n=2).	Interviewees reported that from their perspective, the leadership and management are fully engaged with the use of these services in clinical practice. *"The management is fully engaged with the use of these service in the routine practice." (2nd interview Aragón, guided cCBT + ccVC)* *"I think this is one of the most committed places you can find where the management - both from hospital management to department management is very committed." (3rd interview Denmark, guided cCBT + ccVC)* This commitment was energised in various manners, including providing resources for training and information sessions for professionals, and time in gaining support. Informants indicated that it proved to be a difficult task and heavily depended on individuals. Management found it useful to raising awareness among health professionals to be part of a wider and innovative European ICT-based project, and involve them in the various phases of the project.

Emerging topic	Description *(quotes are in italics)*
	"Training courses, update and return sessions were organised, in particular for health professionals during the entire life-cycle of the project (…) it is important to organise specific training sessions, and especially, to encourage people to be open to different cultural models and to innovation." (1st interview Piemonte, guided cCBT + ccVC) *"Two resources of the Mastermind team are dedicated to support both patients and health operators. They support during the monitoring of the tool's use and its assessment." (2nd interview Piemonte, guided cCBT + ccVC)* *"Involve health professionals in the various phases of the project, providing them a regular update on progress." (1st interview Piemonte, guided cCBT + ccVC)* *"Raise awareness among health professionals to be part of a pilot project with European scope, funded by the EU, and with the presence of other European countries. The project is innovative and ICT-advanced from a technological point of view, and thus it contributes to innovate also the organisation of the treatment." (1st interview Piemonte, guided cCBT + ccVC)*
Decision making and rationales	
Reported in 8 quotations in 4 out 5 interviews in: • Aragón (n=1); • Denmark (n=1); • Piemonte (n=2).	Interviewees indicated that the decision processes were mostly top-down. In some cases, it was characterised as participatory to cater for acceptance and adoption of the choices made about the implementation of the ccVC service. *"If it is MasterMind we are talking about, it is a decision taken at the top - top down." (3rd interview Denmark, guided cCBT + ccVC)* *"The decision-making process is top-down, but through moments of listening to bottom-up, trying to listen to needs that support the choice." (1st interview Piemonte, guided cCBT + ccVC)* *"We are organised on a top-down decision-making model, but there are always moments of listening." (2nd interview Piemonte, guided cCBT + ccVC)* An important rationale to implement these new services was indicated to be the patients' needs, the sustainability of the services, in combination with the availability and maturity of the technology. *"Technology is mature enough. The organisation must innovate to incorporate them." (2nd interview Aragón, guided cCBT + ccVC)*
Strategy and priorities	
Reported in 10 quotations in 4 out 5 interviews in: • Aragón (n=1);	Interviewees did not explicitly report about the existence of strategies to implement the ccVC services in routine practice. One interviewee indicated that on the surface, a transparent implementation strategy has not been visible.

Emerging topic	Description *(quotes are in italics)*
• Denmark (n=1); and • Piemonte (n=2).	*"Of what I have been able to see in MasterMind, it does not indicate a transparent strategy. Maybe there has been an overall strategy, but it was not something that clearly could be seen." (3rd interview Denmark, guided cCBT + ccVC)* If there was a mention of an implementation strategy, it would be based on the involvement of all participants (patients and health professionals) during the life-cycle of the project, providing them information and results. *"It is important to convey interest in introducing new models in daily practice." (2nd interview Piemonte, guided cCBT + ccVC)* Regarding priorities, interviewees replied that a high priority is given to this project. This is seen e.g. by establishing a reimbursement system for using telemedicine services. *"There is absolutely a great commitment and there has been given a higher priority and funding into it, so that you are actually being rewarded for telecommunications psychiatric consultations, which have not been done in the past." (3rd interview Denmark, guided cCBT + ccVC)* Also, organisations indicated working towards technological platforms with a universal approach that can be deployed in various settings (i.e. primary care, specialised care). Participants indicated that implementation of ccVC services fitted into longer-term goals to provide collaborative care between Primary Care and the Mental Health Care Units. *"In order to reach care continuity, it is necessary to break down the barriers between Primary Care and Specialized Care. The videoconference services contribute significantly to reaching this goal." (2nd interview Aragón, guided cCBT + ccVC)*

A.5.3 Factors hindering and fostering implementation - Perspective on implementation

Emerging topic	Description *(quotes are in italics)*
Needs and perspectives	
Reported in seven quotations in 4 out 5 interviews in: • Aragón (n=1); • Denmark (n=1); • Piemonte (n=2).	One of the reasons for implementing ccVC mentioned by the interviewees was to enable synchronous interdisciplinary consultations. It was seen as an opportunity to test the organisational change management needed to implement them efficiently. *"Care continuity is a challenge, and videoconference breaks organisational and physical barriers." (2nd interview Aragón, guided cCBT + ccVC)* As a result, it was seen that the implementation of ccVC can facilitate new opportunities in mental healthcare. *"This study opens up new cultural and technological horizons." (2nd interview Piemonte, guided cCBT + ccVC)*

Emerging topic	Description *(quotes are in italics)*
	Interviewees reported that the attitude towards the project remains one of the most important factors to address when implementing these kinds of services in routine care. *"During the study there were some difficulties of a cultural nature [resistance to innovation] and of a technological nature for both the territorial coverage of the network [for ccVC] and for usability and limitations of the cCBT tool."* *(2nd interview Piemonte, guided cCBT + ccVC)*
Implementation success	
Reported in five quotations in 2 out 5 interviews in: • Denmark; • Piemonte.	Interviewees (n=2) indicated in general to regard the implementation of ccVC a success when the service is offered as standard for certain clinical populations. This implies a certain clinical effectiveness and uptake of the service in widely recognised clinical guidelines for treating depressive disorder (e.g. NICE). *"When all my health professionals offer the patient this opportunity [ccVC] as a common standard. That this approach is natural for them." (3rd interview Denmark, guided cCBT + ccVC)* *"The implementation is to be considered a successful experience when after checking the effective use of the tools for the purpose of the study, it requires the availability in daily practice for all professionals regardless of their participation in the pilot study." (1st interview Piemonte, guided cCBT + ccVC)* Other interviewees (n=3) did not report an explicit expected outcome in order to regard the work to implement ccVC in routine practice as a success.
Strategy, priorities, activities, and resources	
Reported in nine quotations in 5 out 5 interviews in: • Aragón (n=1); • Badalona (n=1); • Denmark (n=1); and • Piemonte (n=2).	Regarding facilitating factors in terms of organisational strategies and priorities, interviewees indicated that the commitment to a certain higher level goal such as collaborative care, quality improvement, or a better understanding of disease, are important drivers for prioritising implementation of the ccVC services. *"Strengthen the work about epidemiological analysis in order to prevent and understand the causes of mental disorder. Discomfort prevention and recognition of early symptoms (…) study and research programmes to better understand the causes of discomfort not only from a biological point of view, but also for example from a social perspective: migration, ethnic-cultural integration etc." (2nd interview Piemonte, guided cCBT + ccVC)* To make it happen, interviewees indicated that concrete activities and resources are important to lower the barriers that might exist. For example, some organisations allocated specific time slots in health professionals' diaries for ccVC so that GPs and

Emerging topic	Description *(quotes are in italics)*
	specialists could meet. Also, professionals were invited to try out the technology to become acquainted with it. Financial incentives were implemented as well. *"Training sessions ad hoc and continuous monitoring of the study are key aspects facilitating adherence to the project." (2nd interview Piemonte, guided cCBT + ccVC)* *"Of the promoting factors we have tried, through management to pay, then the department gets a charge per performance (…) the staff (health professionals) have to learn new workflows, which means that extra resources have to be used and workflows have to be replaced." (3rd interview Denmark, cCBT + ccVC)*
Technology and use	
Reported in 11 quotations in 2 out 5 interviews in: • Denmark; • Piemonte.	Regarding the implementation of ccVC, representatives of the organisations indicated that technology and guidance in use are important factors to take into account. Often, issues with technology often lead to disapproval of professionals very quickly. *"It is particularly important that the technical element is completely eliminated... if you, as staff, have to learn something new and face some technical challenges and problems, they will quickly give up." (3rd interview Denmark, guided cCBT + ccVC)* As a suggestion, it was considered positive to provide the professional with the required and often innovative devices to engage in the new service. *"For ccVC, it was useful to provide a technological device ad hoc [e.g. tablet] to the health professionals." (1st interview Piemonte, guided cCBT + ccVC)* Interviewees also stated that the evidence base, clinical guidance, and professional development are factors that have a role in the implementation of ccVC services in routine care. According to the interviewees, healthcare professionals seem to be more supportive to the project when it is presented well and explained that evidence shows that patients get a good benefit from ccVC and demand it. *"When you present the project in a good way and say that it is a good supplement, that patients like it, and that the evidence shows that the patients get equally good benefits from it, then the staff are generally positive." (3rd interview Denmark, guided cCBT + ccVC)* Clear guidelines on how to carry out treatment with ccVC can be conducive to the implementation, so that with this 'tool' nurses may perceive this as normal treatment. On the other hand, too many challenges in learning a new workflow (e.g. technical) can lead to abandonment.

Emerging topic	Description *(quotes are in italics)*
	"We are preparing a guideline on how to conduct a videoconference treatment. This did not exist when MasterMind was launched, so these nurses have been very alone in this, but I think that will change now." *(3rd interview Denmark, guided cCBT + ccVC)* As a suggestion, one interviewee explained that it is worthwhile to provide professionals the opportunity to try out the new technology, to encourage for buy-in. *"We have a play day where they [health care professionals] call each other up and uninstall and install the program. We have an expectation that this actually benefits the implementation (…) some of the barriers, I think, can be eliminated by making these play days, for which you devote half a day." (3rd interview Denmark, guided cCBT + ccVC)*

A.6 Domain 7: Socio-cultural, ethical and legal aspects

Emerging topic	Description *(quotes are in italics)*
Responsibilities	
Reported in 4 quotations in 1 focus group of 11 in: • Germany: therapists (n=8).	In offering ccVC services, healthcare professionals indicated that it is important to (re)define responsibilities, for example in tackling technical issues. *"(...) I think it is important for a patient, that there is not too much time between first contact and the start of the therapy. And that they know which person is responsible for them." (1st focus group discussion Germany, guided cCBT + VC)* Similarly, it would be supporting if there were clear responsibilities within the implementation process and a standardized procedure, which is not completely implemented. *"I think it is facilitating if there are clear responsibilities for the processes (...) If there is clarity and a standardisation, which are adhered to by the different locations. (...) it would be helpful. No, that is not completely implemented yet." (1st focus group discussion Germany, guided cCBT + VC)*

Emerging topic	Description *(quotes are in italics)*
Public image	
Reported in 16 quotations in 8 interviews i: • Badalona (n=1); • Basque Country (n=1); • Denmark (n=2); • Piemonte (n=2); • Turkey (n=1); • Wales (n=1).	Representatives of the involved service providing organisations indicated that it is expected that Mastermind services will positively impact the organisation's public image. *"I think this is another further improvement and I think this will improve the image."* *(1st interview Basque Country, guided cCBT + VC)* *"Telemedicine in psychiatry demonstrates an ambition to innovate the healthcare practices also with the support of advanced equipment, particularly at a time when the resources constraint due to the economic crisis of the western society."* *(1st interview Piemonte, guided cCBT + VC)* Reasons for this contribution to a positive public image include an increased treatment efficiency, enlarged accessibility and treatment flexibility. In addition, this image might attract health professionals who want to drive this further forward. *"I experience that it contributes to a very positive image. The Psychiatry in RSD is known for that we have taken some of these things in use, that we test them and that we develop and are co-developers, widely seen of other welfare technological solutions. It is very image-enhancing." (1st interview Denmark, guided cCBT + VC, ccVC)* *"It is difficult to answer. I would like that our department has the image that we are fast to adopt new technologies in use and that it is an area we commit ourselves to." (3rd interview Denmark, guided cCBT + VC)* *"Where we can have packages or episodes of care starting as close to possible after diagnosis ... that will help build the public image of the Health Board as a responsive mental health provider." (3rd interview Wales, ccVC)* *"[…] then METU, as the first institution to establish this service would have a stronger perception as a leader."* *(1st interview Turkey, guided cCBT + VC)*