

CHAPTER 13

SUMMARY AND GENERAL DISCUSSION

In this thesis, we have aimed to collect empirical knowledge on a particular strategy to implement the recommendations of the multidisciplinary practice guideline on the assessment and treatment of suicidal behavior in specialized mental health care. We tested the effectiveness of an e-learning supported Train-the-Trainer program which content reflected the practice guideline. Its effectiveness was measured at three levels: the professional, the patient and the organizational. Also, special care was taken to further validate the most commonly used questionnaire to assess suicidal thoughts, the Beck Scale for Suicide Ideation.

We will first summarize the main findings of each chapter of this thesis. Next, we will reflect on our findings and discuss the implications. Methodological considerations and suggestions for future studies are detailed in the last part.

Summary of the Main Findings

Chapter 2 described the study protocol of our cluster randomized controlled trial investigating the effect of our intervention at the professional and organizational level.

Chapter 3 described the study protocol of our cluster randomized controlled trial investigating effects on outcomes, cost-effectiveness and cost utility at the patient level.

Chapter 4 details the scientific rationale and the outline of our e-learning supported Train-the-Trainer intervention (TtT-e) so that organizations, scientists and clinical practitioners can evaluate, copy and adjust every step of our program.

In chapter 5, we tested the hypothesis that structured training via TtT-e would lead to more confidence, knowledge and suicide guideline adherence of professionals when compared to professionals in the control condition. At the time of the 3-month follow-up, trained professionals showed stronger guideline adherence, more self-perceived knowledge of suicidal behavior and more confidence as providers in dealing with suicidal behavior. Sub-group analyses showed that improved guideline adherence was found among nurses but not among psychiatrists and psychologists.

Chapter 6 presented the results of our intervention on patients. For the total sample of patients with suicidal ideation at baseline, no effect of the intervention was found at the level of suicide ideation or frequency of self-reported suicide attempts at the 3 month follow-up. We found our

intervention had an effect for patients diagnosed with depression and with suicide ideation at baseline. Patients reported more often that suicidality was addressed during therapy, which indicated that TtT-e was able to change the behavior of professionals in individual therapy sessions.

Chapter 7 displayed the results of our cost-effectiveness analysis. No statistically significant differences in costs were found for the total group of suicidal patients between the intervention and the control group. The intervention might be considered cost-effective for depressed suicidal patients if society is willing to make substantial investments.

In chapter 8, we evaluated the implementation process and described the effect of TtT-e at the organizational level. Results were mixed. Some institutions reported no differences in the work process after the intervention. Others reported changes in daily practice, such as the structural registration of suicidal behavior, and the removal of non-suicide contracts. Some key-professionals stated that they were more alert for suicidal behavior and more attention was paid to suicidality during transition moments. They felt that because of TtT-e there was less taboo associated with asking about suicidality, and noticed a common understanding of suicidal behavior between professionals. Differentiating between chronic suicidal behavior and acute suicidal behavior on top of chronic suicidal behavior had improved in some departments. The TtT-e model has been found easy to disseminate, both during and after the trial and was well received by its users. From 2012 until end of 2014, over 5500 mental health professionals have been trained according to TtT-e, indicating a well perceived need to improve suicide prevention skills among Dutch mental health professionals.

Chapter 9 presented the development and feasibility of the e-learning module that supported the Train-the-Trainer program. The module was well received, and participants stated that they learned a lot about the topic of suicide prevention, and that they gained confidence in dealing with suicidal behavior. No effect on outcomes of the e-learning above and beyond the face-to-face training was found.

In chapter 10 we applied modern techniques to shorten the Beck Scale for Suicide Ideation. A computer adaptive test simulation demonstrated that when using the scale for classification, on average 4 items instead of the full 19 items were sufficient. This greatly reduces respondent burden when assessing the risk of suicide with the Beck Scale for Suicide Ideation.

In chapter 11 we applied confirmatory factor analyses to demonstrate whether any change found between baseline and follow-up can be regarded as real change, as opposed to change due to a different understanding of the construct. We found the Beck Scale for Suicide Ideation to be measurement invariant over time, thereby legitimizing its use in longitudinal assessment.

Chapter 12 demonstrated that on average, asking about suicide does not result in effects on mood. A small sub-sample of vulnerable participants did experience a minor negative effect on mood after answering questions about suicide.

Discussion of the Main Findings

An e-learning supported Train-the-Trainer program to improve suicide practice skills of professionals

We hypothesized that mental health professionals would benefit from the training in suicide practice skills by a trained peer, in small interactive multidisciplinary groups with e-learning support. Both our empirical findings and our interviews with key professionals demonstrated the success of our chosen strategy. The training offered hands-on techniques that could be directly applied in clinical practice. This was highly appreciated by trainees as they directly understood and experienced the effects of the training. Also, the statistical rarity of suicide, the difficulty of the topic and the lack of formal training during (post) graduate education makes structured training in suicide practice skills a welcome intervention¹. No matter how experienced a professional is, dealing with suicidal patients remains difficult, and therefore our intervention was welcomed by all professionals, whether novices or highly experienced. Within our study, we trained expert professionals to train their own team. This was well received for various reasons. Being trained by a peer in your own team makes it easier to relate to and implement the training content in actual daily clinical practice. Also, within the current time frame, with its focus on production, there is little time for reflection on work processes. Even teams dealing with suicidal behavior on a frequent basis were found to not often discuss suicidal behavior. Our intervention brought together existing teams of experienced and less experienced professionals of all disciplines to deal with suicidal behavior.

As expected, implementation as usual resulted in little uptake of the guideline. At 3 month follow-up, most participants in the control condition had not read the summary of the guideline, and almost half of the professionals in the control condition did not even know that the guideline had been released.

In contrast, after TtT-e, 85% of the professionals stated to have read the summary of the guideline. We found that individual professionals improved around 10% on our outcome measures after TtT-e. As practice guidelines reflect every day practice, professionals already show high levels of guideline adherence without being trained. In a systematic review of 235 studies on guideline dissemination, 10% change has been found to be the maximum expected change when training experienced professionals². Although our intervention resulted primarily in change at the level of the individual, we argue that the program can easily be adapted to facilitate change in complete teams by offering role-plays and feedback that target

multidisciplinary collaboration. If anything, our training offered teams a common and unifying vocabulary to more easily deal with suicidal behavior in the future. Professionals from all disciplines with a wide range of experience in suicidal behavior all increased significantly in confidence in dealing with suicidal behavior, showing that even highly experienced and specialized professionals benefited from the training.

One of the main barriers when training complete teams is the obvious loss of production and the logistical difficulty of finding staff to fill during training of a complete team. E-learning might be used to shorten the face-to-face training and to make the program more flexible and scalable³. Professionals could prepare the face-to-face training by first viewing the module either at work or at home. Also, on-line training material can be viewed repeatedly and long after the face-to-face training has been provided, making it a useful reference manual. Professionals who used the e-learning module of our study were found to highly appreciate the e-learning module, and they stated that they had learned a lot on the topic of suicide prevention and gained confidence. When offering the module at work, one must improve the ICT facilities, as we found them to be insufficient to display the module. When offering the module at home, professionals might be compensated for time spent, as we found most professionals not motivated to follow the module in their leisure time.

An e-learning supported Train-the-Trainer program to improve care for suicidal patients

Care for suicidal patients has greatly improved during the last decades⁵. Although still present, the taboo and myths surrounding suicidal behavior have decreased. Suicide is recognized as a topic in its own right, not just a by-product of Axis I or II disorders⁶. It is accepted that suicide cannot be accurately predicted, but an individual risk can be assessed, and an appropriate treatment plan can reduce the risk⁶. Psychiatrists, psychologists and nurses have come to accept the multidisciplinary character of suicidal behavior. The development of the current guideline fits in this movement towards improved and integrated care for suicidal patients¹. By developing a guideline created by leading experts that is authorized by the professional organizations, mental health professionals, suicidal patients and their families have a sound starting point for the best possible care. Our intervention translated the most important recommendations into concrete and directly useable techniques. For example, the CASE interview method⁶ offers all professionals a structured and successful method to systematically assess suicidal behavior. During four role plays, professionals experienced how it was to more systematically address suicidality by interviewing a colleague that had to act as a suicidal patient from his/her own daily practice.

Importantly, by having to act as a suicidal patient, the professional could experience the effect that such a systematic assessment could have on patients. We hypothesized that by training professionals in these concrete techniques, and by letting them experience the impact of the technique on themselves, care for suicidal patients would improve and suicide ideation would decline faster. In our study, a wide range of psychiatric departments was included, from acute psychiatry departments to out-patient depression units⁸. When analyzing the results of all patients together, we found no effect on suicidal behavior or treatment satisfaction. We did find an effect on suicide ideation when focusing on suicidal patients with a diagnosis of depression. Apparently, the current focus of the intervention, making contact, might be effective for depressed suicidal patients, but it may fall short for other suicidal patients. We therefore argue that offering the same training to different psychiatry departments might not be effective, as suicidal behavior among disorders is diverse. It is argued that the effect of guideline implementation is more optimal when the proposed recommendations are discrete and delimited⁹. As the PGSB focusses on the assessment and treatment of suicidal behavior in general, implementation strategies might be more effective if they focus on suicidal behavior within a specific patient group. A highly tailored intervention aimed to implement anxiety guidelines found comparable effects on patients with an anxiety disorder as we found within depressed suicidal patients¹⁰. Therefore, we argue that tailoring the content of TtT-e for different psychiatric departments would result in a different focus during the training, and might thereby improve the impact on both professionals and patient care. Currently, Dutch experts on suicidal behavior of patients with personality disorders are modifying the content of our intervention to optimize the impact when training staff of personality disorder departments.

Based on the results of the current trial, we must conclude that an e-learning supported Train-the-Trainer program cannot be considered cost-effective in comparison with implementation as usual. This leads to the obvious observation that it is expensive to train specialized (and therefore expensive) professionals. However, cost-effectiveness will seldom be the primary reason for training specialized teams¹¹. Training is desired because **knowledge on care is constantly changing, and we want our specialized professionals to provide state-of-the-art care**¹². We have to accept that in order to have the best possible care, we should invest in the training of professionals. In the long run, this might have a cost-effective effect, as patients will receive the best possible treatment by many more professionals. However, no spectacular short-term cost-effective effects can be expected. Also, we only assessed direct and indirect costs, such as health care uptake of individual patients. Intangible costs of direct family make up a much larger

fraction of the costs when compared to direct costs¹³. By not assessing these costs, we are likely to have underestimated the cost-effectiveness of our intervention.

An e-learning supported Train-the-Trainer program to help organizations implement guidelines

In our protocol article¹⁴, we hypothesized that our intervention would result in more guideline adherence at institutional and department level. Mixed results were found. Some organizations reported an overall change in dealing with suicidal behavior, while others indicated no difference beyond the individual level. These mixed results might be explained by several factors. Firstly, the focus of the intervention was mainly on the improvement of suicide practice skills of individual professionals¹⁵, resulting in change visible at individual level. It was expected that because of the intervention on the individual level, both complete teams and organizations would change their work processes. However, current literature¹⁶ on organizational change argues that successful adaptation to change at the organizational level is rare, and becomes even rarer as organizations become larger and less flexible. Dutch mental health care is a vast system with a large number of stakeholders. Government bodies, insurance companies, patients and professional guilds all manifest competing demands, resulting in system complexity. Therefore, the expectation of considerable change in a complex organization such as the Dutch mental health care system after an intervention such as TtT-e is unrealistic. Also, within our study, improvement at the organizational level was not clearly defined, making the assessment and comparison of change across several institutions difficult^{17,18}. We argue that future implementation interventions should more explicitly target the organizational structure and should let the organizations formulate what they consider to be effective change, and how they would operationalize successful implementation.

Further Dissemination

An important question is what happens with the TtT-e now the PITSTOP study has finished. As with many implementation studies¹⁹⁻²¹, we found positive short term effects of our intervention. Concerns are that implementation effects will disappear as the researchers leave. Departments in our trial did ask us for an after-care program. As the training was well received, they wanted to know how to keep the level of suicide prevention high. Currently we do not know at what frequency the intervention (or part of the intervention) should be repeated. After our study we can conclude that the effect of our intervention lasts for 3 months, but we have no data on the effect after

3 months. The guideline recommends training professionals regularly in suicide practice skills, without recommending the frequency of training⁶. We asked key professionals from institutions in the study about the further dissemination of the intervention. We found that most institutions had the ambition to train many more teams with their own trainers. However, “between dreams and realization, there are laws and practical objections⁹”. Some institutions could not find the support of higher management, others could not find the funding. Some had to hire external trainers because the trained colleagues’ were too busy. So, although the intervention was well received by individual professionals, it remains difficult to realize further dissemination on the organizational level. The sociological Normalization Process Theory helps to understand why some health innovations become normalized in every day practice while others do not and could serve as the starting point for new implementation strategies²². The theory relates the individual professionals to the organizational capacity. By regarding the individual within the organizational context, interventions based on this theory might result in longer-term improvement of health care after guideline implementation than interventions that focus mainly on the individual.

Despite all barriers, at the end of 2014, over 5500 professionals have been trained according to TtT-e. Importantly, 113online²³, an expertise center for suicide prevention in the Netherlands, will start to coordinate the training of mental health professionals via our method from 2015. Also, our e-learning module is being implemented in over 30 mental health institutions and several private practices in the Netherlands via the so-called GGZ-ecademy (an e-learning organization for Dutch mental health care), and publisher Bohn, Stafleu and van Loghum. Both organizations incorporated the content and structure of our e-learning module and applied their format and educational experience to improve the module. The new module is currently available to over 30.000 mental health professionals all throughout the Netherlands. These initiatives indicate that our intervention will continue to be spread among mental health professionals long after the trial ended. The uptake of implementation interventions after a trial has ended is an important goal of the program Health Care Efficiency Research of The Netherlands Organization for Health Research and development (ZONMW) that funded the current study.

A Call for a Practice-based Guideline on Guideline Implementation

Over the years, multiple implementation studies have been carried out, implementing several guidelines using several kinds of methodology and interventions^{20, 24}. Results vary and recommendations are usually open-ended. Even the terminology used when discussing implementation science

is inconsistent, with multiple and diverse terms being used to describe the same ideas and strategies²⁵. One wonders if it is possible to develop an evidence-based implementation strategy^{17, 26}. How can one develop a parsimonious model combining psychological factors such as motivation and attention, contextual factors such as time and workload, and attributes of the guideline (e.g. clarity of recommendations)? How can we model (or manipulate) the complex interaction between patients and a multidisciplinary team of professionals? There are so many different factors that influence guideline adherence that any trial is bound to miss important covariates. In our study we demonstrated that the training of professionals with an e-learning supported Train-the-Trainer program could lead to actual change in the approach taken with (suicidal) patients. But what can we say about the exact mechanisms of change? Even the exact working mechanism of our intervention is not straightforward as it consisted of different elements (the Train-the-Trainer element, the face-to-face training, the e-learning module, the multidisciplinary training) that have not been examined separately. So perhaps we have to accept the irony that we will never have exact evidence on implementing evidence-based guidelines. Fortunately, as stated earlier, evidence-based guidelines are not only based on results of trials but also on recommendations developed on the consensus of experts⁶. More practice-based guidelines still greatly help professionals, patients and policy makers. Therefore, we call for a practice-based guideline on evidence-based mental health guideline implementation. Similar to clinical guidelines, it should combine scientific evidence, professional consensus and users experience. It should not offer broad pieces of advice such as “multifaceted training is more effective than single interventions²⁷”, but it should provide clear algorithms based on which implementers can develop their own implementation. The terminology used to describe interventions and barriers should be consistent. The ultimate test case of such an implementation guideline would be to use the recommendations of the guideline to implement itself.

The Assessment of Suicide Ideation

The primary outcome of our trial was change in suicidal thoughts. We hypothesized that patients treated by multidisciplinary teams who were trained by the TtT-e program would recover more quickly from suicidal ideation as compared with patients treated by multidisciplinary teams who were not trained. Research on change in suicidal thoughts is difficult for various reasons. For one, medical ethical committees (METCs) are reluctant to approve research that involves items on suicidal thoughts. An important concern among medical committees is that asking about suicide might reinforce such thoughts or acts or result in a decrease in mood.

To examine the adverse effects of answering items about suicide, we conducted a randomized trial among students (chapter 12). On average, no effect of answering suicide items on mood was found. We did however find a small negative effect of these items for a subgroup of more vulnerable participants. The effect was comparable to the effect of mood inducing techniques²⁸, an often-used technique in psychological science. All current studies on the iatrogenic effect of suicide items focus on average scores²⁹. These studies conclude that there is no effect of suicide items on mood when comparing the average scores of the intervention condition with the control condition. But are we really interested in average scores? Do METCs really care that on average it is safe to ask about suicidal thoughts? METCs might be more interested in the outliers that disappear in the analyses of means. Subgroup analysis of our study among students did reveal that some groups of participants showed a decrease in affect after answering suicide items. This effect was not large, but it was present. We argue that the discussion on the iatrogenic effect of suicide items would be helped by focusing on outliers, not on averages. METCs are more likely to be convinced if we acknowledge that, although on average patients do not become more negative after answering suicide items, there might be some persons that do react negatively to the items. These effects are not large, but should be taken into consideration when designing suicide research. By pretending that these small effects are not there we are unlikely to find common ground with ethical committees, which is harmful for future suicide research.

Another important barrier when assessing change in suicidal thoughts is that the available questionnaires take quite some time to administer. The most often used scale, the Beck Scale for Suicide Ideation (BSS) has 19 items, imposing a response burden on patients and test administrators. In chapter 10 of this thesis, we applied modern test theory techniques, such as item response theory and computer adaptive testing, to examine whether we could reduce the length of the BSS without losing discriminant validity³⁰.³¹ Using item response theory, we identified which items of the BSS were most informative when assessing suicide ideation, and which items might be omitted because they added no extra information when compared to the more informative items. Next, we demonstrated that the application of computer adaptive testing can reduce the number of items needed to assess risk for future suicidal behavior. On average, 4 items instead of the full 19 items were sufficient to classify patients as having a low or elevated risk. This is good news for patients, scientists, interviewers and METCs. By using modern test techniques, the assessment of suicide ideation and suicide risk becomes less burdensome and therefore more feasible. The last study on the assessment of suicide ideation in this thesis was the establishment of measurement invariance over the BSS over time (chapter

11). In our trial among suicidal patients, we assessed suicide ideation both at intake and at three months follow-up. If a patient's overall score at follow-up was lower than at baseline, we argued that the patient's suicidal thoughts diminished over time. However, to reach valid conclusions on the basis of repeated measurements, it has to be ensured that a patient's score at the baseline measurement represents the same construct as the patient's score at follow-up. This can be done by testing whether overall scores are measurement invariant over time. By using confirmative factor analysis, we demonstrated that the scale of the BSS is measurement invariant over time, i.e. the change found between the two time points can be attributed to actual change in suicide ideation, and not to a change in understanding of the concept of suicide.

By testing the effects of suicide items on mood, by optimizing the BSS via modern test techniques and by demonstrating measurement invariance, we hoped to have facilitated the assessment of suicidal thoughts for future studies.

Methodological Considerations and Future Studies

As stated in the introduction, research among vulnerable psychiatric patients presents several difficulties³². An important focus of our intervention was making contact with suicidal patients, and paying more attention to their suicidal ideation. Since most of patient data were collected via paper-and-pencil, patients in both conditions might have experienced more attention being paid to their suicidal thoughts due to the assessment of suicidal ideation. Also, as part of our safety plan, when a patient showed increased suicidal ideation at baseline in either the control or the intervention condition, we reported this to their caregiver. This monitoring and supervision has led to more attention being paid to suicidal patients in both conditions, making it more difficult to determine the effect of our intervention. Importantly, budget cuts in Dutch mental health care were introduced just after our randomization was completed, resulting in a loss of 11 departments after randomization and therefore less power.

Considering the cost outcomes, we had almost no cases that were complete, and heavily relied on statistical techniques to impute the missing data. Also, due to the unavailability of the online Routine Outcome Monitoring (ROM) of patients, we were limited to assessing patients only at baseline and after three months. This is a very short time span in which to measure any significant changes in health status or healthcare services uptake, especially for patients admitted to specialized mental health care institutions. In future studies, data on suicide ideation should be collected in a more systematic and less obtrusive manner via ROM. The usage of shorter assessment scales could help realize this.

We did not find a significant improvement of psychiatrist and psychologists' responses to our self-constructed scale on guideline implementation. One of the explanations could be that the response options to the vignettes were too easy for this group of professionals resulting in a ceiling effect. With our self-constructed scale we aimed to more concretely assess changes in professional behavior when compared to more deductive scales. Due to various problems, such as lack of audio on computers and the length of the questionnaire, we argue that our multimedia scale was not the most appropriate way to assess change in behavior. Looking back, role-plays, or even taping and analyzing treatment sessions of a sub-sample of participants presumably would have resulted in more criterion and discriminating validity and less dropout³³.

It is important to keep testing the effect of e-learning modules, even when they are already being implemented³⁴. Although we did not test the effect of our e-learning module separate from the effect of the face-to-face module, our module is currently being implemented within the mental health care system. It has been noted that e-health research cannot keep up with technological advances and implementation of online innovation³⁴. Standard scientific designs such as a randomized controlled trial are argued to be incapable of offering the information needed in the field of e-health. Therefore, in collaboration with the GGZ-ecademy we strive to test the efficacy of the e-learning module using more responsive and pragmatic designs such as a stepped wedge design³⁶. An often used argument for the use of e-learning is its cost-effectiveness^{4,37}. Medical education is expensive³⁸, and via e-learning costs can be reduced^{4,37}. However, there is a lack of studies examining the cost effectiveness of e-learning^{4,35,39-41}. Therefore, the ongoing implementation of e-learning modules in mental health care should be combined with the thorough validation of its (cost)effectiveness using pragmatic trials.

A strength of this study is its randomized controlled design, which is rare in this field of research^{19,20}. Also, the departments included were a good representation of the psychiatric departments in the Netherland making it easier to generalize the results to other institutions. Finally, given the difficulty in collecting data among suicidal patients admitted to mental health care, the difficulties with the ROM and the challenges of the ongoing budget cuts and reorganizations, the patient data collection in our trial can be regarded as quite successful. The large amount of patients included in our study makes our findings more reliable and generalizable. Therefore, our findings offer the initial evidence of effectiveness of suicide guideline training of professionals on the wellbeing of psychiatric patients, demonstrating the potential of structured guideline implementation via an e-learning supported Train-the-Trainer program.

Provisional Suggestions for Future Implementation

Our e-learning supported Train-the-Trainer program was well received by professionals, and found to be easy to disseminate. As the intervention was not found to be cost-effective, and significant effects on patients were only found for depressed suicidal patients, we need to be careful about our recommendations. We therefore end this thesis with provisional suggestions for other implementers to take into consideration when implementing the guideline.

- Train professionals to train their own team

Being trained by a role-model peer was highly evaluated. However, most suitable trainers also tend to be really busy as they are often also expert clinicians. Therefore, make sure the trainers are not only competent, but also available for future trainings.

- Train multidisciplinary teams with a multidisciplinary training duo

Teams were enthusiastic about the multidisciplinary element. Suicide is a multidisciplinary task, and team performance can be improved by training nurses, psychologists and psychiatrists in the same training session. Seeing that even the most experienced professional in your team struggles with asking about suicidal behavior was considered an important part of the success of the face-to-face training. We found that trainees appreciated it if the trainer duo's were also from different disciplines. The combination of a nurse and a psychiatrist was regarded as the best trainings duo. More focus should be directed at the improvement of complete teams. Offering role-plays and feedback that target multidisciplinary collaboration could result in more positive effects at team level.

- Intervene at the team and organizational level, as well as on the individual level

Training individuals will not directly lead to change at the team and organizational level. To structurally improve guideline adherence, care should be taken to also improve teams and organizations. Teams might be improved by specifically focusing on team performance during the face-to-face training. Organizations should be stimulated to formulate what they consider relevant change and how they operationalize successful implementation.

- Use e-learning modules to support face-to-face training

Professionals that used the e-learning module of our study were found to highly appreciate the e-learning module, and stated they had learned a lot on the topic of suicide prevention. E-learning makes the program more flexible and easier to disseminate³.

- Adjust the focus of the training to the specific patient group

The focus of our intervention was on making contact and addressing suicidality during treatment. This focus might not be suitable for all psychiatry teams. For example suicidal behavior within borderline patients is argued to be more complex, and asks for more specialized treatment such as dialectic behavioral therapy⁴². We therefore advise tailoring the focus of the training more for each patient group. The structure of the training (four role plays combined with theory) can remain the same.

- Evaluate and adjust the intervention based on new insights

It is tempting to use a program such as PITSTOP suicide for years. Trainers are used to the program, and it takes quite some time to make adjustments. However, guidelines and implementation processes are highly dynamic⁴³. Developers should therefore continuously evaluate the intervention and adjust it on the basis of the results and current guideline developments⁴⁴.

- Offer booster sessions every two years

Most participants stated that they wanted to have a booster session at some point. We do not know what the most effective interval is, but currently are investigating the effect of a blended booster session with a one hour e-learning and a 3 hour booster session offered one year after the PITSTOP suicide intervention. For now, we advise to offer a booster session every two years.

- Investments are needed if all staff is to be trained

Our intervention was not cost-effective. However, cost-effectiveness will not be the primary reason for implementing guidelines for specialized mental health care teams. Training of teams is required because knowledge on care is constantly growing, and we want our specialized professionals to apply state-of-the-art care. We have to accept that in order to have the best possible care, we should invest in the training of professionals.

- Make key professionals within MHIs responsible for suicide guideline implementation

Mental health care has many topics that deserve attention. Currently, production is an important topic, as is a reduction of seclusion⁴⁶ and the treatment of less patients in specialized health care⁴⁷. Without a project owner, suicide practice guideline implementation is likely to disappear of the agenda. We found that an essential element to successfully implementing the guideline was at least one highly motivated professional that kept suicide prevention a priority within the MHI.

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