

# Professional training for clinical guidelines development: a distance learning program

*Capacitação para o desenvolvimento de diretrizes clínicas: um programa de ensino a distância*

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|---------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Cintia Pereira de Araujo <sup>1</sup> |  | <a href="mailto:cintialp@ufcspa.edu.br">cintialp@ufcspa.edu.br</a>         |
| Suena Parahiba <sup>2</sup>           |  | <a href="mailto:suena.parahiba@hmv.org.br">suena.parahiba@hmv.org.br</a>   |
| Gilson Dorneles <sup>2</sup>          |  | <a href="mailto:gilson.dorneles@hmv.org.br">gilson.dorneles@hmv.org.br</a> |
| Karlyse Claudino Belli <sup>2</sup>   |  | <a href="mailto:karlyse@gmail.com">karlyse@gmail.com</a>                   |
| Verônica Colpani <sup>2</sup>         |  | <a href="mailto:vecolpani@gmail.com">vecolpani@gmail.com</a>               |
| Cinara Stein <sup>2</sup>             |  | <a href="mailto:cinara.stein@hmv.org.br">cinara.stein@hmv.org.br</a>       |
| Ávila Vidal <sup>3</sup>              |  | <a href="mailto:avila.vidal@saude.gov.br">avila.vidal@saude.gov.br</a>     |
| Marta Maior <sup>3</sup>              |  | <a href="mailto:marta.maior@saude.gov.br">marta.maior@saude.gov.br</a>     |

## ABSTRACT

**Introduction:** The training of professionals is important for improving the methodological quality of clinical guidelines in public health. Distance learning (DL) offers advantages over traditional face-to-face training to reach audiences from different locations. The aim of this article is to describe a DL program for professional development for the development of national clinical guidelines.

**Experience report:** The program involved tutoring from Health Technology Assessment Units (HTAUs) associated with two editions of a synchronous basic course, a self-instructional basic course, and an advanced synchronous course for guideline development, as well as two editions of a synchronous course and a self-instructional course on the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. Thirteen HTAUs were tutored for methodological support in guideline development for the Brazilian Unified Health System (SUS) during the development of 20 guidelines in different clinical areas. Forty-eight participants from 16 HTAUs and the Ministry of Health completed the synchronous basic course for guideline development. Two hundred sixty-three participants from 23 Brazilian states and the Federal District completed the self-instructional basic course for guideline development. Thirty-seven participants from 11 HTAUs and the Ministry of Health completed the synchronous advanced course for guideline development. The synchronous GRADE course was completed by 58 participants from 11 HTAUs and the Ministry of Health, while the self-instructional course was completed by 114 participants from 15 Brazilian states and the Federal District.

**Discussion:** Through this program, it was possible to offer professional development in areas such as evidence synthesis, health technology assessments, and clinical guideline development to 16 HTAUs, as well as to over two hundred professionals working in 24 states of the federation. Positive participant evaluations and satisfactory average scores in activities suggest overall acceptance and satisfaction with the quality and content of the courses offered. Additionally, the program supported the development of clinical guidelines in SUS and the incorporation of new technologies.

**Conclusion:** DL courses can help improve the skills of researchers and HTAUs from different regions of Brazil for the development of high-quality methodological guidelines for SUS.

**Keywords:** Education, Professional; Health Planning Guidelines; Practice Guidelines as Topic; Brazil.

## RESUMO

**Introdução:** A capacitação dos profissionais é importante para a melhoria da qualidade metodológica das diretrizes clínicas em saúde pública. O ensino a distância (EaD) apresenta vantagens sobre o treinamento presencial tradicional para atingir públicos de diferentes locais. O objetivo deste artigo é descrever um programa de EaD para capacitação profissional focado no desenvolvimento de diretrizes clínicas em nível nacional.

**Relato de experiência:** O programa envolveu tutorias de Núcleos de Avaliação de Tecnologias em Saúde (NATS) associadas a duas edições de um curso básico síncrono, um curso básico autoinstrucional e um curso avançado síncrono para o desenvolvimento de diretrizes, além de duas edições de curso síncrono e um curso autoinstrucional sobre o sistema Grading of Recommendations Assessment, Development and Evaluation (GRADE). Treze NATS foram tutorados para suporte metodológico no desenvolvimento de 20 diretrizes em diferentes áreas clínicas. Concluíram o curso básico síncrono para o desenvolvimento de diretrizes 48 participantes de 16 NATS e do Ministério da Saúde (MS). Concluíram o curso básico autoinstrucional para o desenvolvimento de diretrizes 263 participantes de 23 estados brasileiros e do Distrito Federal (DF). Concluíram o curso avançado síncrono para o desenvolvimento de diretrizes 37 participantes de 11 NATS e do MS. O curso síncrono sobre GRADE foi concluído por 58 participantes de 11 NATS e do MS, enquanto o curso autoinstrucional foi concluído por 114 participantes de 15 estados brasileiros e do DF.

**Discussão:** Por meio desse programa, foi possível oferecer capacitação profissional em áreas como síntese de evidências, avaliações de tecnologias em saúde e diretrizes clínicas para 16 NATS, além de mais 200 profissionais atuantes em 24 estados da Federação. As avaliações positivas dos participantes e as notas médias satisfatórias nas atividades sugerem uma aceitação e satisfação geral com a qualidade e o conteúdo dos cursos oferecidos. Além disso, o programa apoiou o desenvolvimento de diretrizes clínicas no SUS.

**Conclusão:** Cursos de EaD podem ajudar a melhorar as competências de pesquisadores e de NATS de diferentes regiões do Brasil para o desenvolvimento de diretrizes para o SUS com boa qualidade metodológica.

**Palavras-chave:** Educação Profissionalizante; Diretrizes para o Planejamento em Saúde; Guias de Prática Clínica como Assunto; Brasil.

<sup>1</sup> Universidade Federal de Ciências da Saúde de Porto Alegre, Porto Alegre, Rio Grande do Sul, Brasil.

<sup>2</sup> Hospital Moinhos de Vento, Porto Alegre, Rio Grande do Sul, Brasil.

<sup>3</sup> Ministerio da Saude, Brasília, Distrito Federal, Brasil.

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## INTRODUCTION

Evidence-based clinical guidelines play an important role in the Brazilian public health system. Published by the Ministry of Health (MS), these guidelines are developed with the support of various actors, especially the Health Technology Assessment Units (HTAU) in a process coordinated by the National Commission for the Incorporation of Technologies (CONITEC) in the Unified Health System (SUS). These documents aim to establish standards and recommendations for the diagnosis and treatment of health conditions, based on the best available evidence; they also take into account the patient experience and the contributions of experts in the clinical area of interest, with a view to improving the quality of patient care.

Once these guidelines have been developed, any new technologies are subjected to a rigorous evaluation by CONITEC, which advises the Ministry of Health on matters relating to the incorporation, alteration and exclusion of technologies in the SUS. In addition, guidelines should be continually updated<sup>1</sup>, especially when health technologies are incorporated, altered or excluded, or when there is new scientific evidence identified from periodic literature reviews<sup>2</sup>.

The formats for clinical guideline include, notably, the Clinical Protocols and Therapeutic Guidelines (PCDTs) and the Diagnostic and Therapeutic Guidelines (DDT)<sup>3,4</sup>. PCDTs are clinical guidelines that establish criteria for the diagnosis of the disease or health problem; the recommended treatment, with the appropriate medicines and other products, when applicable; the recommended dosages; the clinical control mechanisms; and the monitoring and verification of therapeutic results to be followed by SUS managers. The documents that aim to guide the best behaviour in the field of oncology are the DDTs<sup>3,4</sup>. Various normative processes, such as laws<sup>5</sup> and ordinances<sup>6</sup>, have established the process of developing clinical guidelines, using robust methodologies and well-defined stages. Furthermore, the creation of CONITEC has highlighted the role of clinical guidelines in promoting comprehensive therapeutic care in the SUS. These documents are fundamental for standardising conduct and practices, ensuring quality and safety in patient care and helping health professionals make decisions<sup>7-9</sup>.

From a methodological perspective, the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system was created to provide a framework for carrying out the stages of drafting clinical recommendations through a transparent process for presenting a summary of evidence, including its quality<sup>10</sup>. It is currently used by more than 100 institutions in 19 countries, including the World Health Organisation (WHO), the Centers for Disease Control and Prevention (CDC) and the Cochrane Collaboration<sup>11</sup>. The Brazilian Ministry of Health is one of the institutions that has

adopted the GRADE system for conducting health technology assessment (HTA) processes and developing clinical guidelines.

Training projects involving the main players can promote standardisation and methodological support to improve the development of clinical guidelines and HTAs<sup>12</sup>. Considering the territorial breadth of Brazil and the diverse health contexts throughout the country, the implementation of a distance learning programme for professional training in the development of nationally applicable clinical guidelines is an attractive and viable option. According to the Ministry of Education, distance education is “the educational modality in which didactic-pedagogical mediation in teaching and learning processes occurs with the use of information and communication media and technologies, with students and teachers conducting educational activities in different places or at different times”, and has significant advantages over traditional face-to-face training, such as flexible access to content and the possibility of personalising learning<sup>13</sup>. Furthermore, distance learning allows students from different regions to access the same courses at distant educational institutions, overcoming geographical barriers and making education more inclusive and accessible. This teaching approach saves resources, which can be used to improve the content and quality of qualification programmes<sup>13</sup>.

The aim of this article is to describe a distance learning programme for training in the development of clinical guidelines for health professionals, methodologists and policy makers. For this report, no actions related to submission to the Research Ethics Committee were applied.

## EXPERIENCE REPORT

The training programme for the development of clinical guidelines was an initiative of the Guidelines Project of the Moinhos de Vento Hospital (Porto Alegre, RS) in partnership with the Ministry of Health through the Support Programme for the Institutional Development of the Unified Health System (PROADI-SUS). The programme involved HTAU tutoring sessions indicated by the MS together with two editions of a synchronous basic course, a self-instructed basic course and a synchronous advanced course for the development of clinical guidelines, two editions of a synchronous course and a self-instructed course on the GRADE system (Figure 1). For the synchronous courses, the Ministry of Health indicated HTAU researchers involved in activities to develop clinical and care guidelines for the SUS, with three to four researchers being indicated per HTAU. The synchronous courses were planned for classes of between 30 and 40 students per edition, and there were a total of 23 withdrawals from the synchronous courses. The self-instructed courses were disseminated through the

electronic media channels of the Moinhos de Vento Hospital and the MS. The structure and content of the courses were based on the guidelines of the MS methodological guidelines and were defined in meetings conducted by methodologists, researchers and representatives of the MS. Evaluations of student satisfaction with the synchronous and self-instructed courses were conducted through questionnaires made available at the end of the final test, as part of the requirement for issue of the certificate of completion. The tutoring sessions were assessed by means of a semi-structured questionnaire on perceptions and possible improvements of the activities for methodological support in the development of PCDTs. The content of the lessons was also developed based on the recommendations of the Guideline International Network of Institute of Medicine<sup>14</sup>.

Health Technology Assessment Units Tutoring

The tutoring aimed to provide methodological support to HTAU indicated by the Ministry of Health that had a compatible profile for the development of clinical guidelines for the SUS. The tutoring consisted of courses and online meetings to provide guidance, clarify doubts about the methodology and give feedback on the activities conducted during the process of developing the clinical guidelines. The online meetings particularly addressed issues such as: scoping meetings, developing evidence search strategies, planning evidence synthesis, developing recommendations and meeting guideline recommendations, and following the methodology of the GRADE system. In addition, members of the tutored HTAUs

were invited to take part in synchronous distance learning courses on the development of clinical guidelines (basic and advanced) and on the GRADE system. Members who were not willing to take part in synchronous courses were advised to take self-instructed courses.

The project accompanied the HTAUs throughout the process of developing the guidelines, supporting all the stages until the document was approved by CONITEC. After two editions of the project, 13 HTAUs were trained, resulting in 20 tutored clinical guidelines (13 guidelines published, one in the process of publication and six in preparation). Table 1 shows a brief overview of the PCDTs developed during the HTAU tutoring programmes. Medical genetics, mainly involving conditions related to rare diseases, was the clinical area with the highest number of PCDTs developed, followed by neurology and psychiatry. In all, 93 recommendations on diagnosis and treatment were developed to answer clinical questions raised by specialists and other actors, such as patient representatives, who are key to public health.

HTAU leaders and other members reported the importance of active and contextualised learning in the tutoring throughout the process of developing clinical guidelines:

*“Tutoring was essential to the success of this project (development of the clinical guideline), with the provision of training courses for our group of researchers as well as methodological support during the development of the guidelines. The team’s organisation and assertiveness were outstanding features of the tutoring process, together with the provision of tools that helped with project*

Table 1. Main clinical areas and recommendations developed in PCDTs developed with the support of tutoring activities.

| Clinical areas   | PCDTs* | Diagnosis recommendations | Treatment recommendations |
|------------------|--------|---------------------------|---------------------------|
| Endocrinology    | 1      | -                         | 5                         |
| Gastroenterology | 1      | 2                         | 2                         |
| Medical genetics | 4      | 2                         | 10                        |
| Haematology      | 2      | 1                         | 13                        |
| Infectology      | 1      | 1                         | 3                         |
| Nephrology       | 1      | 3                         | 8                         |
| Neurology        | 3      | -                         | 8                         |
| Oncology         | 2      | 5                         | 6                         |
| Pneumology       | 1      | -                         | 7                         |
| Psychiatry       | 3      | -                         | 14                        |
| Transplants      | 1      | -                         | 3                         |
| Total            | 20     | 14                        | 79                        |

Legend: PCDTs: Clinical Protocols and Therapeutic Guidelines.  
\* The Clinical Protocols and Therapeutic Guidelines (PCDTs) are clinical guidelines that establish criteria for the diagnosis of the disease or health problem; the recommended treatment, with the appropriate medicines and other products, when applicable; the recommended dosages; the clinical control mechanisms; and the monitoring and verification of therapeutic results to be followed by SUS managers. These are HTA products owned by the Brazilian Ministry of Health.

management, such as drawing up schedules and dividing up tasks between the researchers.”

“The experience has allowed us to acquire competence and autonomy in a real scenario of applying the methodology.”

“The tutoring carried out during the PCDT drafting process played a fundamental role, as it enabled HTAU members to learn/update and standardise the documents to be submitted to the Ministry of Health, thus guaranteeing excellence in the quality of the activities.”

In terms of areas with room for improvement, HTAU members highlighted little clarification on what could be demanded of the tutoring, as well as more guidance on the recommendations meeting stage. For future actions, it was suggested to include tutoring for economic evaluations in health.

Synchronous and Asynchronous Basic Course for the Development of Clinical and Care Guidelines

This course was offered in two editions in 2020 and 2022 (Figure 1) for HTAU members and MS staff.

Content

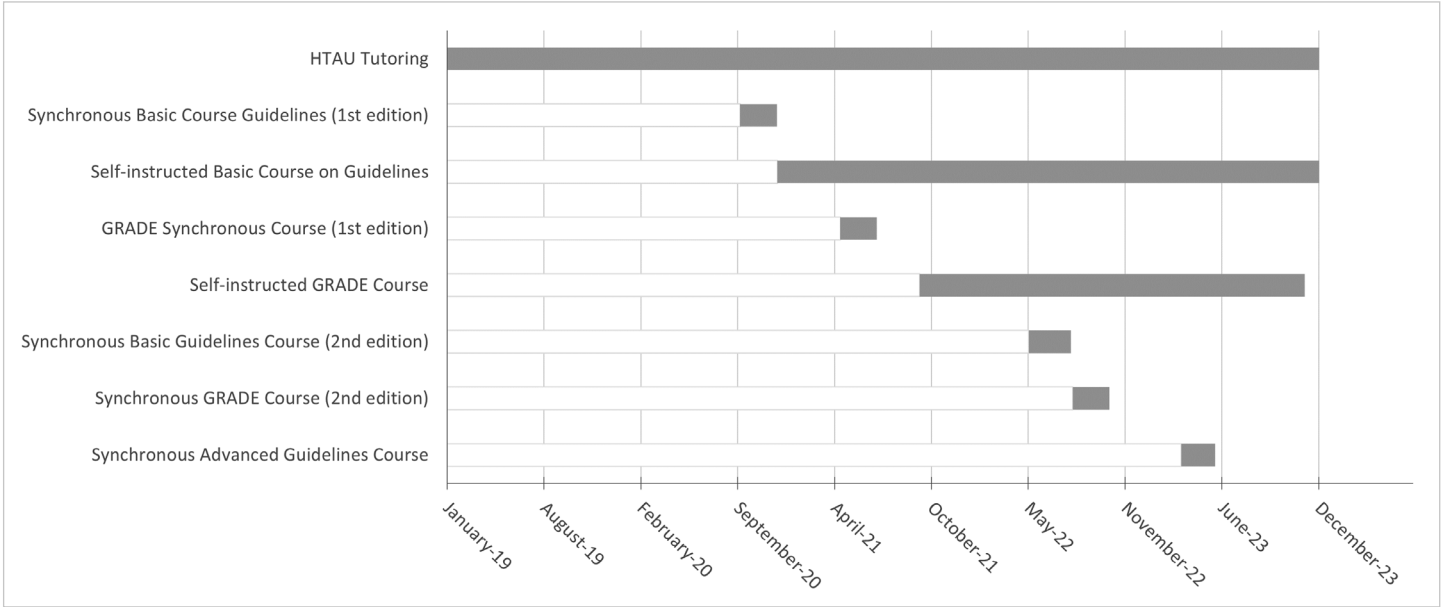
The course consisted of 16 lessons organised into the following modules: a) introduction to clinical guidelines; b) developing and updating Clinical Practice Guidelines; c) assessing the quality of Clinical Practice Guidelines; d) planning

the process of developing Clinical Practice Guidelines; e) questions about clinical guidelines; f) systematic reviews and meta-analysis; g) assessing the quality of systematic reviews; h) assessing the certainty of the evidence.

Format

The course lasted 8 weeks (40 hours). Each week asynchronous content was offered that included a recorded video lesson and compulsory readings related to the topic of the lesson. The asynchronous content was discussed in corresponding weekly synchronous classes, with groups of approximately 15 students for the assessment activities on the following topics: quality of Clinical Guidelines using the Appraisal of Guidelines for Research & Evaluation II (AGREE II) tool (weight 5%), planning and drafting the scope of a guideline (weight 5%), and meta-analysis (weight 5%). Is also included the presentation of a paper in seminar format, participation in seminar discussions (weight 15%), a final assignment (weight 50%) and the final theoretical assessment (20%). The final work consisted of constructing the scope of a fictitious guideline, developing the guideline’s research question, searching the literature for a systematic review that would answer the research question and assessing the certainty of the evidence for an outcome for the defined research question. Furthermore, a minimum attendance of 75% at the synchronous meetings and a grade ≥ 7 were required to receive the certificate of completion.

Figure 1. Gantt chart of the professional training programme for the development of clinical



Synchronous Basic Course Guidelines: Synchronous Basic Course for the Development of Clinical-Assistance Guidelines; Self-instructed Basic Course on Guidelines: Self-instructed Basic Course for the Development of Clinical-Assistance Guidelines; GRADE Synchronous Course: Synchronous Course on the Grading of Recommendations Assessment, Development and Evaluation (GRADE) System; Self-instructed GRADE Course: Self-instructed course on the GRADE System; Synchronous Advanced Guidelines Course: Synchronous Advanced Course for the Development of Clinical-Assistance Guidelines. Source: Prepared by the authors.

### Participation and results

The 2020 and 2022 editions had 25 and 36 participants respectively. A total of 48 participants from 16 HTAUs completed the course (78.68% pass rate). Dropouts were mainly due to issues related to the participants' workload. The average participation rate in the online synchronous sessions was 80%, and the majority of participants (92.3%) were satisfied or very satisfied with the course. The participants obtained an average score of  $8.9 \pm 1.1$  in the final assignment;  $9.5 \pm 0.9$  in the theory test and  $8.6 \pm 2.0$  in the final grade for the course.

### Self-instructed Basic Course for the Development of Clinical and Care Guidelines

The course was created as an offshoot of the synchronous basic course, to make the material available long-term and on demand (Figure 1).

#### Content

The classes were organised into seven modules: a) introduction to clinical guidelines and drawing up and updating clinical protocols and therapeutic guidelines in the Ministry of Health; b) assessing the quality of clinical guidelines; c) organising the process of developing Clinical Practice Guidelines; d) formulating research questions in clinical guidelines; e) systematic reviews and meta-analysis; f) assessing the quality of systematic reviews; g) assessing the certainty of the evidence. In addition to the lectures, further reading material was made available.

### Format

The self-instructed basic course consisted of 20 hours' learning time. Sixteen lessons were made available on the edX® platform between 2020 and 2023. After watching all the lessons, the assessment module was released to the student. The assessment consisted of a theoretical test with ten objective questions. Students who obtained a mark  $\geq 7$  would receive a certificate of completion. Each student was entitled to three attempts at the test.

### Participation and results

263 participants from 23 Brazilian states and the Federal District completed the self-instructed basic course (Figure 2A) and obtained an average score of  $8.3 \pm 1.0$  in the objective test.

### Synchronous Advanced Course for the Development of Clinical and Care Guidelines

In 2023, an edition of the synchronous advanced course was offered to those who had completed the synchronous basic course and to members of the HTAU tutored and to MH civil servants.

#### Content

The course covered the following topics: a) evolution of the assessment of the certainty of evidence; b) strength of recommendation; c) from evidence to recommendation; d) dissemination and diffusion process; e) special topics: living guidelines, updating and adapting guidelines and rapid guidelines; f) GRADE for diagnostic tests; g) GRADE for network meta-analysis; h) GRADE for prognosis, prevalence and

**Figure 2.** Geographical reach of self-instructed courses.

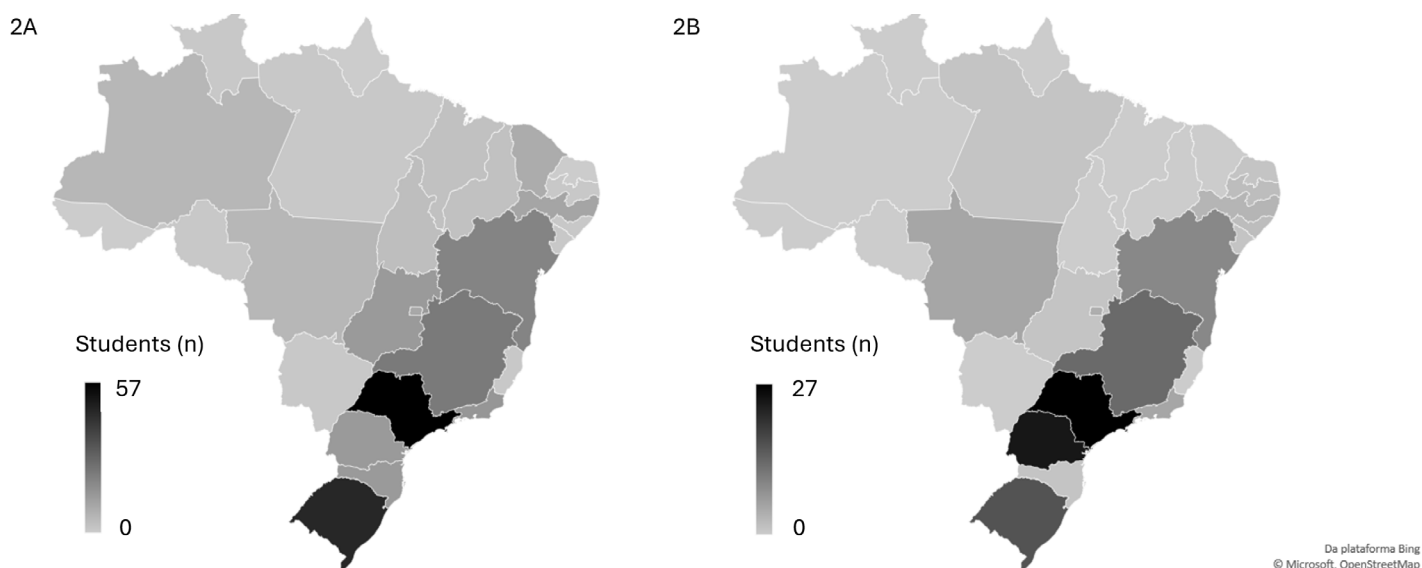


Figure 2A: geographical distribution of the students who completed the Self-instructed Basic Course for the Development of Clinical-Care Guidelines; Figure 2B: geographical distribution of students completing the Self-instructed Course on the GRADE System. Source: Prepared by the authors.



incidence studies. Compulsory and complementary reading was also required.

### **Format**

The advanced course consisted of nine weekly synchronous lessons totalling 40 class hours. Assessment was based on course attendance and eight formative assessments. A minimum attendance of 75% at synchronous meetings and an end-of-course grade  $\geq 7$  were required to receive the certificate of completion.

### **Participation and results**

The course was completed by 37 participants from 11 HTAUs and the MS (100% pass rate), who had a final course grade of  $9.3 \pm 1.2$  and 97.3% were satisfied with the advanced course.

## **Synchronous and Asynchronous Course on the GRADE System**

This course was offered in two editions in 2021 and 2022 (Figure 1) for HTAU members and MS civil servants.

### **Content**

The course was organised into the following modules: a) introduction to the GRADE system; b) assessment of the certainty of the evidence; c) risk of bias in randomised and non-randomised clinical trials; d) domains that downgrade the certainty of the evidence: risk of bias, inconsistency, imprecision and publication bias; e) domains that increase the certainty of the evidence: magnitude of large effect, dose-response relationship and confounding factors; f) presentation of the results and evidence synthesis tables. Compulsory and supplementary reading related to the subject matter of the lessons was also requested.

### **Format**

The 2021 and 2022 editions lasted 8 weeks (40 hours) and consisted of 14 and 16 asynchronous and synchronous classes respectively. A recorded lesson was made available each week and compulsory and supplementary reading was requested. There were also weekly online synchronous classes with groups of around 15 students to carry out assessment activities. The assessment activities involved participation in discussion forums, presentation of articles in seminar format, participation in seminar discussions, an exercise on the Risk of Bias (RoB) 2.0 tool, an exercise on the inconsistency and imprecision domains, an exercise using the GRADEpro tool, presentation and participation in the tutoring, and a final objective assessment, delivery of the final work comprising an assessment of the certainty of the evidence at the start of the

course and an assessment of the certainty of the evidence at the end of the course and an objective assessment at the end of the course. A minimum attendance of 75% at synchronous meetings and a final grade of  $\geq 7$  was required to receive the certificate of completion.

### **Participation and results**

The 2021 and 2022 editions of the course had 30 and 28 participants respectively. A total of 48 participants from 11 HTAUs completed the course (82.75% pass rate). Dropouts were mainly due to issues related to the participants' workload. The average participation rate in synchronous online classes was 86%, and 100% of participants were satisfied or very satisfied with the course. The participants obtained an average score of  $7.7 \pm 2.7$  in the final assignment;  $9.5 \pm 0.9$  in the theory test and  $7.7 \pm 2.7$  in the final grade for the course.

## **Self-instructed course on the GRADE System**

The course was created as an offshoot of the synchronous course on the same topic, to make the material available long-term and on demand (Figure 1).

### **Content**

The lessons were organised into the following modules: a) the importance of assessing the certainty of the evidence; b) assessing the risk of bias in individual studies; c) factors related to assessing the certainty of the evidence; d) measures of effect and presentation of results. In addition to the lectures, further reading material was made available.

### **Format**

The self-instructed course on GRADE was organised into 20 learning hours. Thirteen lessons were made available on the edX® platform. After watching all the lessons, the assessment module was released to the student. The assessment consisted of a theoretical test with ten objective questions. Students who obtained a mark  $\geq 7$  would receive a certificate of completion. Each student was entitled to three attempts at the test.

### **Participation and results**

The course was completed by 115 participants from 15 Brazilian states and the Federal District (Figure 2B), who obtained an average score of  $8.7 \pm 1.1$  in the objective test.

The geographical distribution of the students who completed the Self-instructed Basic Course for the Development of Clinical-Care Guidelines is illustrated in Figure 2A. The geographical distribution of students completing the Self-instructed Course on the GRADE System is illustrated in Figure 2B.

## DISCUSSION

Distance learning has proved to be an effective strategy for promoting professional training in a highly technical and complex field such as the development of clinical guidelines. The flexibility offered by this format allowed for the participation of professionals from 25 states and the Federal District, overcoming geographical barriers and making education more accessible and inclusive.

HTA is an emerging area in the context of Brazilian public health and the methodological knowledge for developing clinical guidelines is even more incipient. In view of the small number of researchers involved in the subject, an inter-institutional collaboration was set up to train professionals, especially those working on the development of clinical guidelines. The successful completion of courses by a considerable number of participants from various Brazilian states highlights the programme's relevance and reach. The positive evaluations of the participants, together with the satisfactory average grades in the activities, suggest a general acceptance and satisfaction with the quality and content of the courses on offer. In addition, the participants' suggestions for future actions, such as tutoring on health economic evaluations, could further enrich the programme and improve the skills of those involved.

The programme has had a significant impact, resulting in the drafting of 20 clinical guidelines, as well as the incorporation of health technologies into the SUS. The testimonies of the HTAU members emphasised the importance of the tutoring offered in the construction of documents with methodological quality. Furthermore, the consistency and agreement in the assessment of the certainty of the evidence made by the students of the synchronous course on the GRADE System increased<sup>15</sup>.

A gap in training for the development of clinical guidelines is evident in the results of the classification of HTAU linked to the Brazilian Network for Health Technology Assessment (REBRATS), published in March 2024<sup>16</sup>. The analysis included 113 HTAUs registered with REBRATS in relation to the development of clinical guidelines, resulting in only 47 registered HTAUs being categorised into three levels of competence. Twenty HTAUs were classified as level I, demonstrating an understanding of the methodology, 15 were considered level II, denoting intermediate mastery, and 12 reached level III, showing an advanced stage of proficiency in the subject, capable of autonomously leading the drafting of PCDTs and guiding working groups<sup>16</sup>. Thus, considering the development of approximately 20 PCDTs with systematic and reproducible methods that have led to more than 70 recommendations for the diagnosis and treatment of patients with different health conditions in the Brazilian public health

system, the findings presented represent the potential of the distance learning strategy as an efficient approach for promoting continuing education in an emerging area such as HTA, in synergy with the Ministry of Health's need to standardise and direct the treatments available in the SUS.

Therefore, making courses available on open-access online platforms promotes the continuing learning, facilitates the dissemination of knowledge and the inclusion of a wider audience. Expanding these resources could increase the programme's reach and contribute to further development in the field of clinical guidelines and HTA throughout the country. It is important to emphasise that although distance learning has advantages in terms of its reach and flexibility, there are challenges related to its effectiveness in training professionals. Recent studies point out that, for adult training in the health field, the combination of synchronous strategies, supervised practical activities and collaborative interaction is fundamental to maximising learning outcomes<sup>17</sup>.

However, assessing competences exclusively through objective questions raises a critical point, especially in times of artificial intelligence, where answers to such questions can be easily accessed. We suggest that future strategies for self-instructed courses plan to include forms of assessment that check in-depth understanding and practical application of knowledge, rather than relying solely on objective questions. Competence in a self-instructed course requires a more comprehensive assessment, which can include practical activities, critical discussions and applied projects, as well as questions that challenge students to use knowledge in an original and practical way.

## FINAL CONSIDERATIONS

The distance learning programme for training in the development of clinical guidelines proved to be an effective and promising strategy, especially for training the HTAU that support the MS. The impact of this initiative on strengthening the SUS stands out, making it possible to incorporate technologies more robustly and improving the quality of care offered to users. Accordingly, it is hoped that the SUS will have at its disposal a network of professionals who are better trained, up-to-date and widespread in various regions of the country, standardising knowledge and ensuring its sustainability.

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## CONTRIBUTION OF THE AUTHORS

Cintia Pereira de Araujo contributed to the conceptualisation of the paper, writing the paper, analysing the results, designing and conducting the courses and tutoring. Suena Parahiba, Gilson Dorneles contributed to writing and revising the paper, analysing the results, designing and conducting the courses and tutoring. Karlyse Claudino Belli contributed to reviewing the paper, analysing the results, designing and conducting the courses and tutoring. Verônica Colpani and Cinara Stein writing and reviewing the manuscript, analysing the results, designing, conducting and coordinating the courses and tutoring. Ávila Vidal manuscript revision, designing the courses and tutoring. Marta Maior writing and revising the paper, analysing the results, designing the courses and tutoring.

## CONFLICT OF INTEREST

We declare no conflict of interest.

## FUNDING

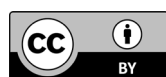
We declare that there is no funding.

## DECLARATION OF DATA AVAILABILITY

Research data is only available upon request

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