

Inclusion for disaster risk management in hospitals of the Instituto Mexicano del Seguro Social

Inclusión para la gestión del riesgo de desastres en hospitales del Instituto Mexicano del Seguro Social

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Abstract

Objective: Determine the level of inclusion in hospital disaster risk management of the Mexican Social Security Institute. **Methods:** The methodology Disability Inclusion in Hospital Disaster Risk Management (INGRID-H) of the Pan American Health Organization was adapted for self-assessment in 276 hospitals. Expert advice sessions were conducted using a cascade format, including verification visits, and 180 days between each evaluation. **Results:** In the first self-assessment, 220 hospitals submitted their reports, and in the second, 236. 186 met inclusion criteria and were selected for analysis. In the first self-assessment the mean obtained for the level of inclusion was 36.70%, and in the second was 52.03%, with a correlation of 0.410 and $p < 0.001$, with a confidence interval of 95%, being statistically significant. **Conclusions:** The adaptation of the INGRID-H tool using self-assessments and tutorials with experts made it possible to obtain a national diagnosis and increase the level of inclusion for disaster risk management in hospitals.

Keywords: Risk management. Disaster. Disability. Inclusion. Hospitals.

Resumen

Objetivo: Determinar el nivel de inclusión para la gestión de emergencias y desastres en hospitales del Instituto Mexicano del Seguro Social. **Métodos:** Se adaptó la metodología de Inclusión para la Gestión de Riesgo de Desastres en Hospitales (INGRID-H) de la Organización Panamericana de la Salud para su aplicación mediante autoevaluación en 276 hospitales. Para ello, se realizaron sesiones de asesoría con expertos mediante un formato en cascada, visitas de verificación y cumplir con el tiempo de 180 días entre cada evaluación. **Resultados:** En la primera autoevaluación, 220 hospitales enviaron sus informes, y en la segunda lo hicieron 236. Se seleccionaron 186 hospitales que cumplieron con los criterios de inclusión para el análisis de resultados. La media obtenida para el nivel de inclusión en la primera autoevaluación fue del 36.70% y en la segunda fue del 52.03%, con una correlación de 0.410 y $p < 0.001$, con un intervalo de confianza del 95%, siendo estadísticamente significativa. **Conclusiones:** La adaptación de la herramienta INGRID-H basada en autoevaluaciones y tutorías con expertos permitió obtener un diagnóstico y realizar acciones con base en ajustes razonables para incrementar el nivel de inclusión para la gestión del riesgo de desastres en los hospitales.

Palabras clave: Gestión de riesgos. Desastres. Discapacidad. Inclusión. Hospitales.

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Introduction

It is estimated that currently 1.3 billion people suffer from a significant disability, representing approximately 16% of the world's population. This number is increasing due to the growth of non-communicable diseases and the increase in people's life expectancy^{1,2}. This population represents one of the most excluded groups and is disproportionately affected by crises, emergencies, or disasters; even under normal circumstances, people with disabilities have more difficulty accessing health, education, employment, and social participation, and are two to four times more likely to die in disasters and emergencies than people without disabilities³.

In Mexico, according to the 2020 Population and Housing Census, of 126 million inhabitants in the country, 5.7% have a disability or some mental problem or condition⁴.

The 2023 Global Survey on Persons with Disabilities and Disasters report by the United Nations Office for Disaster Risk Reduction² reveals limited progress in disability inclusion over the past 10 years. Disasters affect everyone, but they have a disproportionate impact on people with disabilities, who continue to experience barriers to participation and social exclusion, making it essential to consolidate actions and efforts at all levels, and even more so from health services, so that in times of emergencies and disasters, in accordance with the "Safe Hospitals against Disasters" strategy⁵, the premise of "leaving no one behind" is met. This paper presents the experience of the Mexican Social Security Institute (IMSS) in adapting for the implementation of the methodology of "Inclusion for Disaster Risk Management in Hospitals" (INGRID-H) from the Pan American Health Organization (PAHO) and the World Health Organization (WHO) as part of the actions being developed within the framework of the "Institutional Policy for Health Care of Vulnerable Groups, with a Human Rights Approach and Gender Perspective"⁶.

The INGRID-H methodology promotes inclusion based on addressing the needs of people with disabilities working in the health facility, is aimed at all hospital staff, and emphasizes those who work in emergency and disaster risk management. The aspects it evaluates are the visibility of people with disabilities, the participation of people with disabilities, universal accessibility, capacities developed for disaster response, and the hospital emergency and

disaster response plan. Once the hospital is evaluated, it obtains a score that categorizes it as exclusionary, probably inclusive, or inclusive, and actions are recommended for implementation to increase the level of inclusion^{7,8}.

Methods

With the support of the WHO/PAHO Collaborating Center Mex-35 for resilient health services and with the aim of standardizing interventions and advice, a team of facilitators in the INGRID-H methodology was formed for health personnel with training and experience in health service management and accredited as evaluators of Mexico's "Safe Hospital Program." These health professionals joined the task teams both in disseminating information and providing advice regarding the INGRID-H methodology and in subsequent verification visits throughout the country.

The need to adapt the INGRID-H methodology so that it could be applied in a self-assessment format rather than an evaluation by facilitators was observed, in order to achieve national deployment and widespread dissemination of this activity, and to have information from IMSS hospitals within defined timeframes (180 days between each evaluation). The universe of hospitals was 276, including second and third-level units, and a goal of 80% submission compliance for self-assessments was established.

Advisory phase

From July to September 2022, four in-person training workshops were held for each region of the country (IMSS medical units at all three levels of care are organized for practical purposes into four geographical regions in the Mexican Republic: central, south-east, west, and north), with the participation of a total of 230 health professionals assigned to different hospitals. The workshops included conceptual aspects of disability, inclusion, methodology, and the use of the INGRID-H tool.

During October and November 2022, 404 national hospital directors were trained through regional virtual sessions on how to conduct self-assessments using the INGRID-H methodology, during which commitments were established:

- The governing body had to establish its task team for the self-assessment.
- The dates and method for submitting self-assessment forms along with graphic evidence.

Self-assessment phase

The initial self-assessment and the 180-day self-assessment (according to the cycle specified by INGRID-H) were received via email, and a shared folder was enabled in the institutional cloud to receive evidence of the actions implemented in each hospital, in accordance with the basic INGRID-H action plan.

The units submitted the basic action plan and the evaluation report with the INGRID-H tool in electronic format.

To facilitate monitoring of progress and evaluation results, a Microsoft SharePoint web portal for internal communication and a dashboard in Microsoft Power BI were developed, which allowed for a higher degree of compliance with the commitments established for national deployment.

Verification and advisory phase

When the facilitator team decided to adapt the INGRID-H methodology to a self-assessment format, it was considered that there could be a bias in the information, both due to the risk of unfamiliarity with concepts and due to underestimation or overestimation in the way of self-assessment, and for this reason, the need to implement verification visits and validate the information was established. During these visits, the self-assessment information, the hospital emergency and disaster plan, and the actions implemented in the hospital were reviewed and validated, and a tour of the facilities was also conducted, and personnel were interviewed. As an added value, the hospital session was scheduled to take place on the day of the visit so that the facilitator team could present the topic "For a Culture of Inclusion" to the staff.

Results

For the national deployment of INGRID-H, a total of 276 hospital medical units were included: 240 second-level care, 33 third-level care, and 3 outpatient care.

In the first self-assessment, 220 reports were received, representing 80% of the total units included, and for the second self-assessment, 236 reports were received, representing 86% of the total units.

The first self-assessment is considered the unit's initial diagnosis, and the second self-assessment allows for tracking and implemented actions to increase its level of inclusion. According to the

methodology established by PAHO/WHO, the cycle should be completed in 180 days, but in reality, the timeframes for collecting information, validating information, conducting verification visits, analyzing results, and monitoring action plans cause processes to take longer to conclude, sometimes requiring periods between each cycle longer than defined.

When comparing the self-assessments and for the analysis of the results, 90 units were excluded, either because they did not submit one of the self-assessments or because the requested information was incomplete; therefore, the comparative analysis of results was performed on 186 hospitals. The classification of hospitals according to their overall score is shown in figure 1.

In the first self-assessment, 125 hospitals were classified as exclusionary, 45 as probably inclusive, and 16 as inclusive. In the second self-assessment, 67 hospitals were classified as exclusionary, 77 as probably inclusive, and 42 as inclusive. We observed a 46% reduction in hospitals classified as exclusionary, as well as a 70% increase in hospitals classified as probably inclusive and a 163% increase in the number of units classified as inclusive. The minimum score obtained in the first self-assessment was 1.86% and the maximum was 93.76%; in the second self-assessment, the minimum score was 8.94% and the maximum was 98.04% (Fig. 2).

For each of the aspects evaluated by INGRID-H, a comparative analysis of the results was carried out and three compliance ranges were established: 0% to < 44.9%, $\geq 44.9\%$ to < 72.5% and $\geq 72.5\%$ to 100%, according to the INGRID-H index scale (Fig. 3). For statistical analysis, the t-test for related samples was applied, using *SPSS software* version 25.0. It was found that the mean obtained in the first self-assessment was 36.70% and in the second self-assessment it was 52.03%, with a correlation of 0.410 and a p value < 0.001, with a 95% confidence interval, so the difference between the overall results is statistically significant (Tables 1 and 2).

Discussion

The midterm review of the Sendai Framework⁹ emphasizes the importance of adopting a whole-of-society approach to encompass all of society for the implementation of inclusive disaster risk reduction, and underscores the urgency of involving all segments of society, including people with disabilities who are often overlooked, in disaster

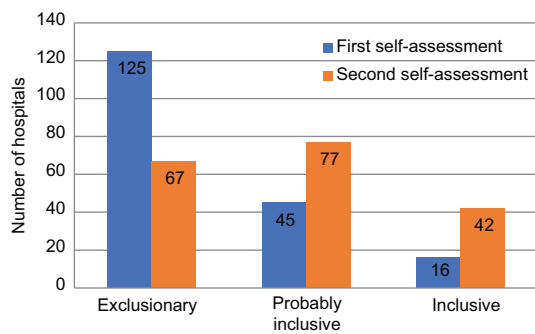


Figura 1. Classification of hospitals according to their level of inclusion.

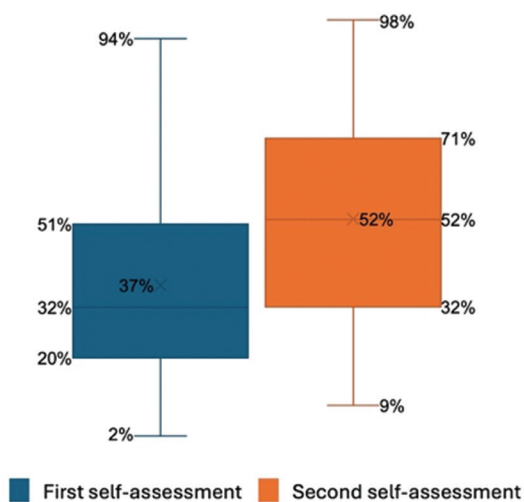


Figura 2. Overall results of the two self-assessments.

preparedness, response, and recovery efforts. People with disabilities are not visualized before, during, or after an emergency, or even more so, they are not integrated, consulted, or represented in emergency management, and therefore we do not know what their needs are¹⁰.

Published works on accessibility and inclusion have focused on the resources and perceived barriers by users and managers of health facilities with a focus on access to health services. In this regard, Villarreal et al.¹¹ found limited accessibility at the second and first levels of care in the IMSS, considering the barriers that users have to overcome to access health services and the available resources. There are also extensive reports of accessibility evaluations with a focus on physical barriers, the chain of accessibility, and communication, such as the one published by the Coordinating Federation of People with Physical

Tabla 1. Statistics of paired samples

Aspect to compare	Mean	n	Std	Mean error deviation
Pair 1 INGRID-H 1	36.70%	186	20.98%	1.54%
INGRID-H 2	52.03%	186	22.99%	1.69%
Pair 2 Visibility 1	32.17%	186	31.66%	2.32%
Visibility 2	52.70%	186	32.28%	2.37%
Pair 3 Representation 1	17.20%	186	34.35%	2.52%
Representation 2	39.43%	186	44.23%	3.24%
Pair 4 Accessibility 1	47.33%	186	19.49%	1.43%
Accessibility 2	55.50%	186	18.88%	1.38%
Pair 5 Capabilities	36.52%	186	35.31%	2.59%
Capabilities 2	47.99%	186	34.43%	2.52%
Pair 6 Hospital plan	48.31%	186	32.01%	2.35%
Hospital plan 2	61.83%	186	29.45%	2.16%

Tabla 2. Correlations of paired samples

Aspect to compare	n	Correlation	p
Pair 1 INGRID-H 1 and INGRID-H 2	186	0.41	0.000
Pair 2 Visibility 1 and visibility 2	186	0.293	0.000
Pair 3 Representation 1 and representation 2	186	0.235	0.001
Pair 4 Accessibility 1 and accessibility 2	186	0.351	0.000
Pair 5 Capabilities 1 and capabilities 2	186	0.306	0.000
Pair 6 Hospital plan 1 and hospital plan 2	186	0.285	0.000

Disabilities of Gipuzkoa¹², which undoubtedly contribute to guaranteeing access to services and represent a solid basis for inclusion in disaster risk management. Gutierrez et al.¹³ validated an inclusion assessment scale for centers and services for people with disabilities, in order to help organizations self-assess their status regarding inclusive values and processes, and thus facilitate the development of inclusive cultures, policies, and practices.

The adaptation of the PAHO/WHO INGRID-H methodology into a self-assessment format allowed for a large-scale initial diagnosis to understand our current position and define, according to the action plan, specific activities to strengthen inclusion. A total of 186 units submitted their information in the first self-assessment, which allowed us to observe that we do

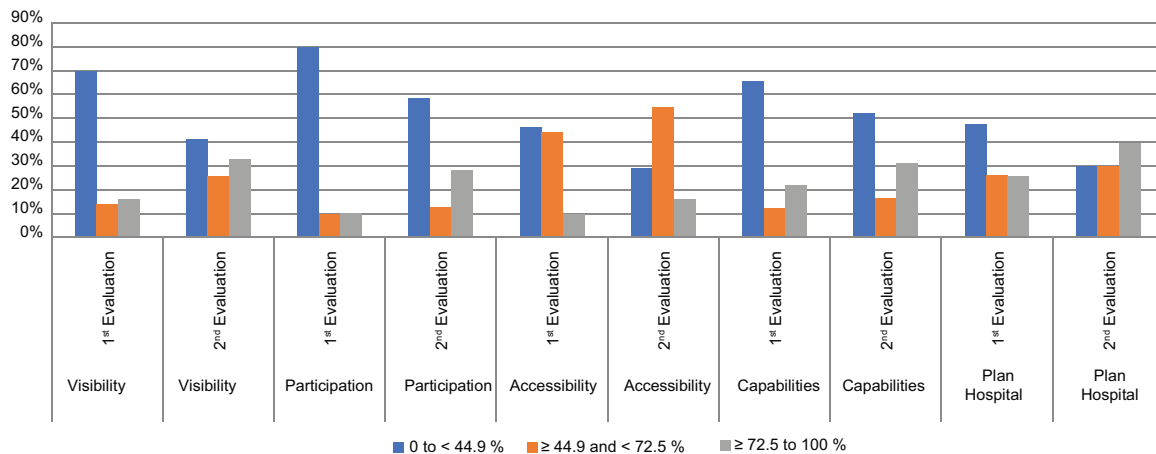


Figure 3. Comparison of results obtained by hospitals in each aspect of INGRID-H.

not know people with disabilities, much less involve them in risk management. Considering that the visibility and participation emphasized by INGRID-H are based on the personnel working in the workplaces, it allowed the medical units to generate actions from the governance to include them in their committees and plans. The WHO's Guidance Note on Disability Risk Management and Health Emergencies states that before an emergency, we must identify pre-existing vulnerabilities, resources, and service gaps for people with disabilities, as well as opportunities to reinforce and strengthen capacities. When comparing these items in the second self-assessment, we observed that in both visibility and participation, the compliance percentage increased in the units¹⁴.

An example of the need to continue promoting the inclusion of people with disabilities is found in the publication by Qi and Hu¹⁵, which refers to the fact that COVID-19 emergency declarations in China lacked an inclusion perspective by overlooking the needs of people with disabilities, which shows that in the face of a serious public health crisis, and with knowledge of this right, they continue to be left aside. Inclusive communication from hospitals is feasible, and we could observe this from the impulse given to specific actions in accessibility to strengthen the autonomy of people with disabilities; an example of this was the adaptation of signage in evacuation routes, and during verification visits, it was observed that in some units, health personnel took Mexican sign language courses.

The integration of people with disabilities in disaster risk management allows them to provide us with the

necessary information so that their specific capabilities and needs are integrated into the plans. An example of how plans can be inclusive is the 2022 National Fire Protection Association (NFPA) document, Emergency Evacuation Plan, Guide for People with Disabilities¹⁶, which provides guidance for developing an emergency evacuation plan that includes people with disabilities.

Upon reviewing the results obtained in the self-assessments, hospital response plans, although they considered people with disabilities, did not actually comply with what is reviewed in INGRID-H, so emphasis was placed on how to integrate the inclusion variable, but above all with the vision that it is directed towards the medical unit worker, in addition to how to strengthen their capacities and the importance of conducting inclusive simulation exercises and drills.

As mentioned, the INGRID-H methodology is based on disaster risk management from the inclusion of people with disabilities. It is necessary to continue strengthening inclusion from a human rights perspective in which universal access to health services becomes a reality, and why not, visualize that through this strategy, interventions can also be promoted to eliminate any type of cultural, educational, economic, political barriers, etc.,^{17,18}.

Conclusions

The INGRID-H methodology focuses on hospital workers with disabilities and encourages them to participate in disaster risk management. The adaptation and implementation of INGRID-H through self-assessment from the strategic level, with a

mentoring-based methodology with experts directed to the tactical and operational levels in a cascading manner, allowed for greater reach in less time and a large-scale diagnosis to focus resources and efforts with the aim of increasing the level of inclusion in hospitals facing emergencies and disasters, but above all, to fulfill the premises of “leaving no one behind” and “nothing about us without us”¹⁹.

Inclusion in disaster risk management is one of the pillars of hospital and health sector resilience, and it is through the institutionalization of these strategies that a greater impact can be achieved. The experience gained with this project sets the stage for further progress in the culture of inclusion and respect for the rights of people with disabilities.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethical considerations

Protection of people and animals. The authors state that no experiments on humans or animals were performed for this research.

Confidentiality, informed consent, and ethical approval. The study does not involve personal patient data. The recommendations of the SAGER guidelines have been followed, according to the nature of the study.

Declaration on the use of artificial intelligence. The authors declare that they did not use any type of generative artificial intelligence for the writing of this manuscript.

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