

# Machine translation at the hospital: healthcare professionals' perspectives on use, appropriateness, and policy



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## Abstract

This study surveys healthcare professionals' use of MT and GenAI at a hospital, examining usage, adoption factors, satisfaction, technical conditions, and the perceived need for policies and training. Results show MT and GenAI tools are mostly used in routine care but are perceived as inappropriate for complex interactions, against a backdrop of absent institutional policies.

**Keywords:** machine translation; GenAI; healthcare; healthcare professionals; hospital; migrant; language discordance; language barriers.

## Resumen

Este estudio encuesta el uso de la traducción automática (TA) y de la inteligencia artificial generativa (GenAI) por parte del personal sanitario en un hospital, y examina los usos, los factores de adopción, el grado de satisfacción, las condiciones técnicas y la necesidad percibida de políticas y formación. Los resultados muestran que las herramientas de TA y de GenAI se utilizan principalmente en la atención rutinaria, pero se perciben como inadecuadas para interacciones complejas, en un contexto de ausencia de políticas institucionales.

**Palabras clave:** traducción automática; inteligencia artificial generativa (GenAI); atención sanitaria; profesionales sanitarios; hospital; migrantes; discordancia lingüística; barreras lingüísticas.

## Resum

Aquest estudi enquesta l'ús de la traducció automàtica (TA) i de la intel·ligència artificial generativa (GenAI) per part del personal sanitari en un hospital, i n'examina els usos, els factors d'adopció, el grau de satisfacció, les condicions tècniques i la necessitat percebuda de polítiques i formació. Els resultats mostren que les eines de TA i de GenAI s'utilitzen principalment en l'atenció rutinària, però es consideren inadequades per a interaccions complexes, en un context de manca de polítiques institucionals.

**Paraules clau:** traducció automàtica; intel·ligència artificial generativa (GenAI); atenció sanitària;

professionals sanitaris; hospital; migrats; discordança  
lingüística; barreres lingüístiques.

## 1. Introduction

The use of machine translation (MT) has emerged as an increasingly attractive solution in contexts where professional translators and interpreters are unavailable or where institutional language policies are lacking — circumstances that are especially common in healthcare (Zappatore & Ruggieri, 2024: 4; Patil & Davies, 2014: 1). In this context, providing “linguistically appropriate care” (Khoong & Rodriguez, 2022: 1275) remains a major challenge for healthcare institutions, making MT and generative AI (GenAI) tools tempting options.<sup>1</sup>

In healthcare settings, professionals use both general-purpose online MT tools, such as Google Translate and Microsoft Translator, and specialised tools designed for medical contexts, such as handheld devices like Pocketalk. While the appeal of MT partly stems from its ease of access and lack of cost, its use in high-risk domains such as healthcare continues to raise concerns, particularly regarding the accuracy and reliability of MT-mediated communication, which may pose safety risks to end-users (Zappatore & Ruggieri, 2024: 2). Communication in healthcare encompasses a broad spectrum of scenarios and text types, involving distinct audiences and varying degrees of risk. The consequences of miscommunication vary widely, with errors in informed consent procedures carrying far greater risks than misunderstandings in low-stakes interactions such as booking appointments (Khoong & Rodriguez, 2022: 1275).

Although MT has been tested as a communication aid in healthcare interactions (Dew et al., 2018), we still know little about how these tools are used in practice by healthcare professionals and patients. Furthermore, guidelines for their appropriate use remain scarce (Zappatore & Ruggieri, 2024). Within Translation and Interpreting Studies (TIS), research on MT has largely focused on its effects within the translation industry — on translators' processes, outputs, working conditions, and training (Vieira, 2025).

Yet, within TIS, there has been limited research on healthcare professionals' perspectives and the factors shaping their adoption of MT and GenAI tools, particularly bearing in mind institutional initiatives such as the Dutch Ministry of Health, Welfare and Sport's call to investigate their potential use in healthcare (van Straaten et al., 2023). This represents a missed opportunity for TIS to explore the role of translation technologies in mitigating language barriers in this context.

Against this backdrop, we adopted a case-study approach at the Leiden University Medical Center (LUMC), an university hospital in the Netherlands, where we surveyed healthcare professionals about their use of online MT and GenAI tools. The study examined how MT and GenAI tools are used to address language barriers in language-discordant situations, where a patient's primary language differs from that of the

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<sup>1</sup> For a definition of MT and generative AI, see, for instance, Moorkens, Way & Lankford (2025).

healthcare system. Based on responses from 84 participants, we analyse five key areas: the use of MT, GenAI, and other mediation strategies; determinants of adoption; frequency of use and satisfaction; technical infrastructure; and the availability of and perceived need for policies, guidelines, and training.

The following sections review related literature on MT in healthcare contexts, outline the study's methodology, and present and discuss results. In the final section, we discuss the findings, drawing conclusions encompassing the study's implications, limitations, and potential for future research.

## 2. MT in healthcare contexts — what we know

While MT in general has been considerably researched — with several literature reviews and surveys published — relatively little attention has been paid to its use in the medical field, where dedicated research remains limited (Zappatore & Ruggieri, 2024: 4). Vieira et al. (2021), in their meta-analysis of medical and legal MT applications, found that although the risks associated with MT use in healthcare are recognised, it is frequently regarded as the only available solution. Their review highlights a preference for situation-specific interactive tools — such as phraselators,<sup>2</sup> handheld devices with visual aids, and fixed-question tools tailored for emergencies — over general-purpose MT. The authors argue that current research often overlooks the complexity of translation in healthcare and legal contexts and call for cross-disciplinary efforts to ensure that insights from TIS meaningfully inform research in these contexts. They also caution that inadequately informed use of MT may reinforce social inequities and increase risks for already vulnerable communities.

More recently, Zappatore & Ruggieri (2024), in their methodological literature review on MT use in healthcare, highlighted how MT — particularly neural MT — is gaining traction as a supplementary, rather than substitutive, resource in healthcare settings, especially when professional translators or interpreters are not readily available. Nonetheless, concerns about reliability persist, particularly when MT is applied to highly sensitive texts, such as patient consent forms or therapeutic procedures. The authors emphasise that the effectiveness of MT varies significantly depending on whether the communication is asynchronous or synchronous, and that real-time speech-to-speech interactions present the highest risk. These scenarios require not only advanced speech recognition systems capable of handling linguistic variation but also the ability to function effectively in noisy environments such as hospitals. Overall, the authors recommend combining MT with pre- and post-editing. Additionally, for high-risk real-time situations, they propose the use of phrase-based MT, particularly when integrated in wearable devices used by emergency responders, such as protective face masks; this, as far as we know, has yet to be developed. Moreover, the authors identify user training as an underexplored but essential aspect of risk reduction through safe and effective MT

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<sup>2</sup> Phraselators are usually handheld devices that store a database of pre-recorded or pre-translated phrases.

deployment, arguing that end-users must understand not only how to use MT tools, but also when and when not to use them.

User studies involving healthcare professionals, patients, and the general public — primarily based on interviews and, in some cases, observational methods — have also attracted academic attention. Taken together, these studies underscore that while MT can provide pragmatic solutions in the absence of interpreters, their effectiveness is highly contingent on context. Across settings — from hospitals in Scotland and Australia to clinical practice in the US — researchers consistently report a tension between the perceived usefulness of MT tools and the risks of mistranslation, especially when stakes are high and communication is verbal, real-time, or medically complex. For example, in their review of MT applications in clinical settings, Haddow, Birch & Heafield (2021) identified three key areas of relevance: the dissemination of public health information, the translation of healthcare-related publications for professionals, and the facilitation of doctor-patient communication. One of the reviewed projects focused on using MT to expand access to online healthcare information in Scotland. While some users found the MT outputs helpful, others reported that translation errors caused confusion or were misleading. The authors concluded that, without post-editing, raw MT is not reliable for clinical use.

In an Australian hospital-based study, Hwang et al. (2022) evaluated the effectiveness of CALD Assist, Talk To Me, and Google Translate in facilitating communication with older patients who had limited English proficiency. These apps were predominantly used for pain assessment and assistance with activities of daily living. Despite their perceived benefits in improving care delivery and interpersonal rapport, the study highlighted persistent challenges, such as limited translation accuracy, poor functionality in noisy settings, and difficulties in accommodating dialects and varied accents.

Mehandru et al. (2022) conducted a qualitative interview study with clinicians across various specialties in the US to explore how language barriers are navigated in practice and the role of MT in such encounters. Their findings highlight the everyday challenges clinicians face — including time constraints, limited resources, cultural barriers, and varying levels of health literacy — and the importance of accountability in communication. To mitigate communication risks, clinicians reported relying on four key strategies: simplifying medical terms, using back-translation, employing non-verbal cues, and testing patient comprehension.

In their study at Geneva University Hospitals, Hudelson & Chappuis (2024) assessed the use of Microsoft Translator and Pocketalk in real-life clinical consultations when human interpreters were unavailable. Although MT is neither officially promoted nor prohibited within the institution, it was generally well received by both patients and healthcare providers. However, the effectiveness of MT varied depending on the language pair and clinical context, and successful communication often relied on speakers' ability to adapt their speech to the limitations of the technology. The authors highlight the need for healthcare professionals to develop targeted strategies for using MT tools effectively — particularly by noticing common sources of speech recognition and translation errors and learning how to anticipate and manage them. These findings

reinforce the importance of core communication skills such as using plain language, adjusting speech pace, attending to nonverbal cues, verifying understanding, and incorporating visual or written aids. Within TIS, these competences align closely with the concept of MT literacy (Bowker & Ciro, 2019).

Recent research has shed light on how migrants use MT in combination with other mediation strategies to overcome language barriers in healthcare settings. Such studies point to a common pattern: migrants rely on MT not as a stand-alone solution, but as part of a repertoire of strategies that include family support, community networks, and lingua francas such as English. This highlights both the agency of migrant users and the systemic gaps that leave them dependent on informal or improvised solutions.

For example, Lindström & Pozo (2020), in a study based on semi-structured interviews, examined the communication challenges faced by Swedish paediatric nurses, doulas, and migrant mothers due to language barriers and cultural differences. Their findings identified MT as one of three key strategies employed, alongside formal and informal remote interpreting and the use of visual aids. Notably, the migrant mothers often favoured self-reliance during healthcare interactions, frequently declining the use of interpreters. Focusing on the Dutch context, Valdez et al.'s (2023; 2025) research revealed that while MT is often the primary mediation strategy, it is rarely used in isolation. Migrants frequently combine MT with other strategies, such as seeking help from community members or using English to facilitate communication. These complementary approaches highlight migrants' resilience and the critical role of social networks in managing the risks of MT use in healthcare contexts.

These studies offer insights into the diverse ways MT is used in healthcare and the challenges it presents, but important gaps remain — particularly regarding the perspectives of healthcare professionals, the factors shaping adoption, and the development of practical guidelines and training for safe and effective use.

### 3. Methods

To explore the use and adoption of MT and GenAI tools in addressing language barriers during language-discordant clinical interactions, we conducted a case study using a questionnaire among healthcare professionals at Leiden's university hospital in the Netherlands (LUMC). The study examined healthcare professionals' use of MT, GenAI, and other mediation strategies; frequency of use; satisfaction; technical infrastructure; and the availability of and perceived need for institutional policies, guidelines, and training. Insights gained from this study will guide a follow-up interview phase to analyse the decision-making processes underlying the use of translation technologies in linguistically and culturally diverse healthcare settings.

The following sections describe the study design, the study context, and the respondents. Additional data related to this publication are available at the ZENODO data repository at the following link: [10.5281/zenodo.16893809](https://zenodo.org/doi/10.5281/zenodo.16893809).

### 3.1 Questionnaire design and data collection

The questionnaire was developed using the web-based software Qualtrics and consisted of three main sections (Figure 1).

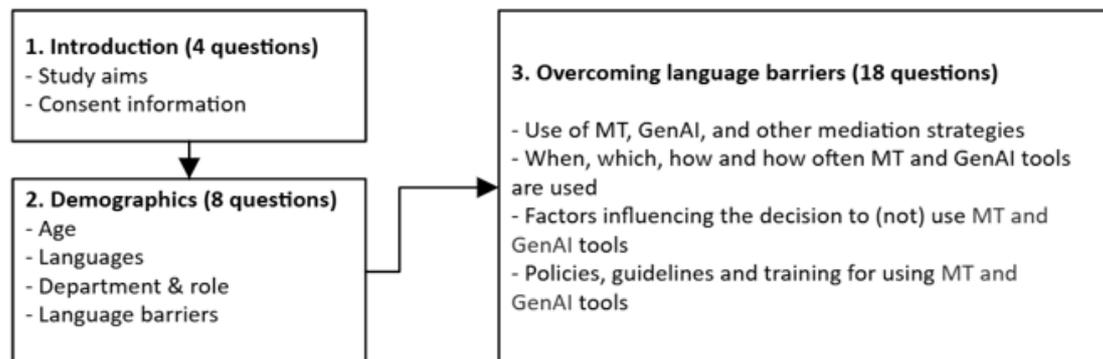


Figure 1: Questionnaire design

Healthcare professionals were asked a combination of closed- and open-ended questions designed to elicit data on how they address language barriers when interacting with patients in language-discordant clinical settings. This included questions such as “What do you do when you encounter a patient who does not understand or speak Dutch?”, “For the tools which you have used in your work, how satisfied are you with the quality of the translations?”, and “Are there situations or conversations during which you find it inappropriate to use digital translation tools to overcome language barriers?”. For the list of themes, see Figure 1.

The design process was primarily informed by previous literature on healthcare communication in linguistically discordant settings and the use of MT tools to communicate with migrant populations (Chan et al., 2024; Vieira, 2024; van Straaten et al., 2023; Valdez et al., 2023). It was an iterative and collaborative design process, with the research team conducting multiple rounds of discussion, feedback, and pilot testing. At the end of this process, we sought and obtained ethical approval from the Ethics Committee of the Faculties of Humanities and Archaeology [reference number 2024/42], and the questionnaire, in English and Dutch, was distributed via targeted emails to hospital departments and staff, with data collection taking place from November 2024 to March 2025. No compensation was offered.

For data analysis, responses to closed-ended questions were exported to Excel and analysed using descriptive statistics (all percentages refer to the total sample, N = 84). Open-ended responses were processed using the qualitative analysis software ATLAS.ti. They were coded and systematically organised into recurring themes based on an inductive approach as described by Saldaña (2016: 105–10), whereby codes capture behaviours and processes that reveal how individuals address challenges, preserving the original meanings attributed by participants to their experiences and actions. Coding was carried out in two cycles, moving from descriptive codes to broader thematic categories. Responses were generally brief, which, in our experience, is common in questionnaires but limits the depth of our analysis.

### 3.2 Study context and respondents

The questionnaire was answered by 101 respondents who met the inclusion criteria: healthcare professionals working at all levels at Leiden's university hospital (LUMC) and who interact with migrants, individuals from diverse backgrounds, and non-native Dutch speakers. Seventeen respondents who did not complete the questionnaire were excluded from the analysis.

The institutional setting of these participants is the Leiden University Medical Center (LUMC), which is Leiden's academic medical institution in the Netherlands and serves as a tertiary referral centre for the Leiden region. It houses various clinical departments specialising in medical care, including a dedicated Paediatric Hospital and Maternity Ward.

Among the 84 valid respondents, 30 were doctors (36%), 29 were medical specialists (35%), and 16 were nursing professionals (e.g. nurses and nurse practitioners) (19%). The remaining nine respondents (11%) included physiotherapists, psychologists, and other allied health professionals. The largest percentage of respondents were between 45 and 54 years of age (29; 35%), followed by those aged 35–44 (22; 26%).

Regarding language use at the hospital, the majority of healthcare professionals reported feeling comfortable using additional languages beyond Dutch. As expected, most participants (81; 96%) stated they were comfortable speaking English, while smaller numbers indicated proficiency in German (16; 19%), French (13; 15%), Spanish (three; 4%), Russian (one), Turkish (one), or Mandarin Chinese (one).

Frequency	Count	Percentage
Never	0	0.00
Two to three times a year	12	14.29
Once a month	13	15.48
Two to three times a month	25	29.76
Once a week	7	8.33
Two to three times a week	21	25.00
Every day	6	7.14
I don't know	0	0.00
	84	100.00

Table 1: Frequency with which language barriers arise in patient communication (Likert-scale-type question; total count and percentage)

As expected, all participants reported facing language barriers when encountering patients who do not understand or speak Dutch. The highest percentage indicated such language barriers occurring two to three times a month, followed by two to three times a week.

## 4. Results

This section presents the questionnaire results organised into four subsections covering key themes: healthcare professionals' use of MT, GenAI, and other mediation strategies; determinants influencing MT and GenAI adoption; frequency of use, satisfaction, and technical infrastructure; and the availability of and perceived need for institutional policies, guidelines, and training.

### 4.1 Healthcare professionals' use of MT, GenAI, and other mediation strategies

Healthcare professionals use a combination of mediation strategies when interacting with patients who do not understand or speak the national language (see Table 2). The strategy used most — reported by all 84 participants — is speaking a common language, such as English. Other prevalent strategies include communicating through the patient's family members or friends (ad hoc interpreting), using MT and GenAI tools, and calling professional interpreters. This aligns with previous studies, which suggest that in these situations, multiple or even a combination of strategies are used to overcome language barriers. For instance, Pokorn & Čibej's (2018) study on asylum seekers' mediation strategies in Slovenia found that although MT was part of their mediation choices, it was used only sporadically, with the use of English as a lingua franca emerging as the most common communication strategy.

Mediation strategies	Count	%
Try speaking English or another language	84	100.00
Communicate through the patient's family members or friends	81	96.43
Use digital translation tools such as Google Translate for translation	71	84.52
Call an interpreter	62	73.81
Use other ways of communicating (for example, using images)	36	42.86
Find a colleague who speaks the same language as the patient	33	39.29

Table 2: Mediation strategies (multiple-choice question; total count and percentage)

Among the tools used at the hospital, Google Translate is the most commonly reported tool (73; 86.90%), followed by SayHi Translate (24; 28.57%), ChatGPT (11; 13.10%), and DeepL (10; 11.90%). Other tools, such as smartphone default translators and Apple's Translate app, are used less frequently. Three participants reported not using any MT or

GenAI tools (see Table 3). While SayHi Translate was among the tools reported, it has since been discontinued and can no longer be downloaded.

MT and GenAI tools	Count	%
Google Translate	73	86.90
SayHi Translate	24	28.57
ChatGPT	11	13.10
DeepL	10	11.90
The default automatic translator available on smartphone	9	10.71
Apple's Translate app	6	7.14
Other devices (e.g. portable translation devices)	4	4.76
Yandex	1	1.19
I don't use any tools	3	3.57

Table 3: MT and GenAI tools used at the hospital (multiple-choice question; total count and percentage)

Use situations	Google Translate		DeepL		SayHi Translate		ChatGPT	
	Count	%	Count	%	Count	%	Count	%
Intake interview	33	39.29	1	1.19	13	15.48	2	2.38
Diagnosis	20	23.81	2	2.38	9	10.71	3	3.57
Delivering bad news	7	8.33	1	1.19	5	5.95	2	2.38
During treatment	49	58.33	4	4.76	15	17.86	5	5.95
Follow-up appointment	40	47.62	2	2.38	19	22.62	5	5.95

Table 4: Contextual use of MT and GenAI tools (carry-forward responses; count and percentage; only tools reported by 10 or more respondents in total)

MT and GenAI tools are most frequently used during treatment and follow-up appointments (see Table 4). They are also commonly employed in intake interviews, particularly Google Translate (33; 39.29%) and SayHi Translate (13; 15.48%). Diagnosis-

related communication follows a similar pattern, though with slightly lower usage rates. In contrast, the use of these tools is significantly less frequent when delivering bad news.

#### 4.2 Determinants influencing MT and GenAI adoption

For most participants (62 out of 81; 76.54%), there are situations in which MT and GenAI tools are considered inappropriate for addressing language barriers in healthcare settings. In particular, MT may not be suitable for different types of medical consultations, such as diagnostic conversations, discussions of treatments, and advanced and end-of-life care.

Table 5 shows the number and frequency of the units of meaning regarding the situations in which the use of MT and GenAI tools is considered inappropriate.

Themes	Units of meaning	Count	%
Verbal-specific interactions across a variety of situations	Health-related (long) verbal conversations	5	5.95
Information gathering and diagnostic conversations	Diagnostic interview	10	11.90
	Intake interview	6	7.14
Treatment discussion and decision-making	Discussing treatments	18	21.43
	Discussing advanced care and end-of-life care	12	14.29
	Delivering bad news	53	63.10
	Discussing sensitive situations with nuance and interpretation	9	10.71

Table 5: Situations in which MT and GenAI tools are considered inappropriate (open-ended question; count and percentage)

The thematic analysis shows that delivering bad news is the most frequently identified situation in which the use of MT and GenAI tools is considered inappropriate (53; 63.10%). Other situations, such as discussing treatments (18; 21.43%), discussing advanced and end-of-life care (12; 14.29%), and diagnostic interviews (10; 11.90%), are also highlighted as contexts where the use of MT and GenAI tools is questioned. Notably, five healthcare professionals considered the use of MT and GenAI tools in any health-related verbal conversation inappropriate.

The next question focused on identifying the factors influencing the decision to use MT and GenAI tools in healthcare settings. The most frequently cited determinant of appropriateness was the severity of the medical situation (52; 61.90%), suggesting that healthcare professionals weigh up the complexity of medical interactions before turning to these tools (see Table 6), aligning with responses from the previous question.

Additionally, patient-related characteristics — namely their background (32; 38.10%) and reading and writing skills (32; 38.10%) — were also considered important. This points to potential concerns regarding how cultural differences and patient literacy can affect communication, particularly in relation to the comprehension of written MT output. A smaller proportion (11; 13.10%) mentioned other factors, including privacy concerns.

Factors	Count	%
Severity of the situation	52	61.90
Background of the patient	32	38.10
Reading and writing skills of the patient	32	38.10
Other	11	13.10

Table 6: Factors influencing the decision to use MT and GenAI tools (multiple choice; count and percentage)

Most participants reported that the use of MT and GenAI tools was typically initiated either by the patient or by the healthcare professional (67.86% and 66.67% respectively), suggesting a shared agency in their adoption. Close to 30% of the respondents indicated that a colleague had recommended the tools, while only a small minority (4.76%) stated that their use was recommended by the hospital. A few respondents (six; 7.14%) cited other reasons, such as the necessity of or a dependence on using these tools to carry out their work — for instance, one participant noted: “Because I couldn’t do my work otherwise.”

Use decision	Count	%
The patient started using it and I continued interacting with them in that way	57	67.86
I decided to use it	56	66.67
A colleague recommended it to me	25	29.76
It is the procedure recommended by my hospital	4	4.76
Other	6	7.14

Table 7: Decision-making process for using MT and GenAI tools

To understand healthcare professionals’ risk perception, we asked participants whether they had ever felt that using MT and GenAI tools posed a threat to patients’ health. The majority of respondents (66; 78.57%) reported that they did not perceive these tools as presenting such a risk. Respondents who perceived risks associated with MT and GenAI tools generally rated them as low (seven; 8.33%) or moderate (five; 5.95%), with two (2.38%) describing the risk as very low. Importantly, no participants assessed the risk as

high or very high, suggesting that although some concerns exist, they are generally perceived as limited in severity.

### 4.3 Frequency of use, satisfaction, and technical infrastructure

Most healthcare professionals reported using MT and GenAI tools sporadically, with occasional use (two to three times a year) being the most common response (35; 41.67%). A smaller proportion reported using them two to three times a month (15; 17.86%) or once a month (14; 16.67%). Regular weekly use was less common, with only six (7.14%) using them once a week and two (2.38%) two to three times a week. Notably, nine (10.71%) never use these tools.

Frequency	Count	%
Never	9	10.71
Two to three times a year	35	41.67
Once a month	14	16.67
Two to three times a month	15	17.86
Once a week	6	7.14
Two to three times a week	2	2.38
Every day	0	0.00
I don't know	3	3.57
	84	100.00

Table 8: Frequency of use of MT and GenAI tools in patient communication over the past 12 months (Likert-scale-type question; total count and percentage)

Healthcare professionals expressed an overall high level of satisfaction with the MT and GenAI tools they use in their work. This was reflected in responses to two questions: one that asked participants to rate their satisfaction with output quality (Table 9), and another that gauged agreement with satisfaction-related statements about the tools' usefulness in their professional practice (Figure 2). Regarding the first question, participants were mostly positive about the most common MT and GenAI tools they use, with only a small minority expressing dissatisfaction. As for the second, most respondents agreed with positive statements about MT and GenAI tools and disagreed with those expressing concerns. For instance, 71 out of 81 participants indicated that they strongly or somewhat agree with the statement "Digital translation tools allowed me to achieve my objective".

	Dissatisfaction		Neutral		Satisfaction	
	Count	%	Count	%	Count	%
Google Translate	3	3.57	11	13.10	57	67.86
DeepL	1	1.19	1	1.19	8	9.52
SayHi Translate	1	1.19	2	2.38	21	25.00
ChatGPT	0	0.00	0	0.00	11	13.10

Table 9: Level of satisfaction with the quality of translations of the MT and GenAI tools used at the hospital (count and percentage grouped into three categories; only systems with 10 or more respondents in total)

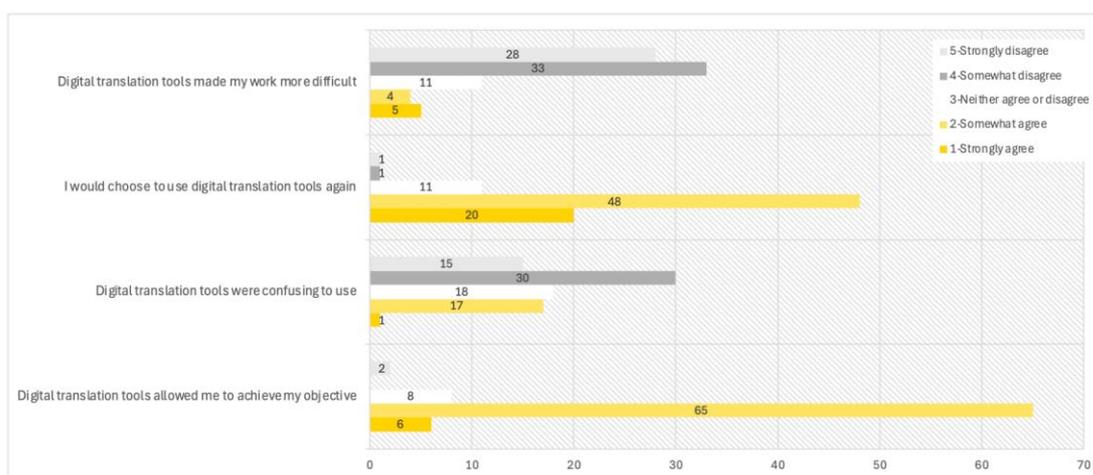


Figure 2: Level of satisfaction with MT and GenAI tools used at the hospital (81 responses; count)

When asked about the type and ownership of devices used to access MT and GenAI tools, the majority of participants (68; 80.95%) reported using mobile phones, most often their personal devices (53; 63.10%) or their patients' devices (42; 50%).

#### 4.4 Policies, guidelines, and training

The findings suggest a lack of institutional policies or guidelines on whether and how to use MT and GenAI tools to overcome language barriers with non-Dutch speakers. The majority of respondents (51; 60.71%) reported being unaware of any hospital or departmental policies or guidelines regarding the use of tools to address language barriers. A further 33.33% (28) reported that no policy exists, while only 3.57% (three) reported the presence of formal guidelines.

At the end of the questionnaire, when asked what kinds of resources they needed to support their use of MT and GenAI tools, less than 20% of healthcare professionals (16) explicitly stated that they did not require further support. For example, one respondent

answered: “NO more guidelines.” Another placed the onus on patients, writing: “No, it is the patient’s problem. Perhaps they could receive training.”

However, most participants (56; 66.67%) not only identified the kinds of resources needed to support the use of MT and GenAI tools but also indicated priority areas for intervention. Of these, structural resources — particularly official guidelines and institutional policies — were cited most often (20; 23.81%).

Regarding the aspects on which support should focus, some participants expressed concerns about translation accuracy (nine; 10.71%). The need for medical-context-specific resources was also underscored (eight; 9.52%), with one participant stating a preference for “custom-made tools, for example, specifically for the patient population.” Smaller proportions cited privacy and confidentiality (six; 7.14%) and the risks and benefits of using MT and GenAI tools (five; 5.95%) as areas requiring attention.

Themes	Units of meaning	Count	%
What type of support is needed	Guidelines or policies	20	23.81
	Training	7	8.33
What aspects the support should focus on	Accuracy	9	10.71
	Resources specific to the medical context	8	9.52
	Privacy & confidentiality	6	7.14
	Risks & benefits	5	5.95

Table 10: Type of support needed (open-ended question; count and percentage)

## 5. Summary and overall discussion

Our analysis of questionnaire data on MT and GenAI use at Leiden’s university hospital reveals a landscape marked by both occasional use and concerns over appropriateness in sensitive healthcare interactions.

The results show that healthcare professionals employ a range of mediation strategies to overcome language barriers in language-discordant interactions. While translation technologies such as MT and GenAI tools are part of their repertoire, they are not the primary strategies used. More commonly, professionals opt for shared languages, such as English, or for the assistance of patients’ family members or friends acting as ad hoc interpreters. The reliance on this array of strategies is consistent with findings from earlier studies focused on migrant patients and reflects a pragmatic, bottom-up response (Valdez & Guerberof Arenas, 2025). While this demonstrates the adaptability and resourcefulness of healthcare professionals, the reported reliance on informal strategies — without reference to professional translators or interpreters — highlights a broader

systemic gap. This situation shifts the weight of managing language barriers onto individuals and raises ethical questions about equitable access to healthcare information across diverse language groups, particularly given the evidence in existing research about the risks associated with informal mediation practices (including risks of misdiagnosis and breach of confidentiality).<sup>3</sup>

At the same time, this pattern reflects the Dutch government's broader language and translation policy stance, which promotes Dutch language learning as the responsibility of migrants and endorses a "don't translate, unless" principle that treats translation as exceptional (Voorlichtingsraad, 2021). Coupled with the discontinuation of subsidies for interpreting and translation in healthcare in 2012 (Tweede Kamer der Staten-Generaal, 2011), this stance effectively deprioritises systematic professional language support, leaving healthcare professionals and patients to manage communication barriers through informal means.<sup>4</sup> This policy approach may also reinforce attitudes among some professionals that communication responsibility lies primarily with the patient (that it is "the patient's problem", as stated by one healthcare professional), a perspective that overlooks the vulnerability of migrant patients and the shared responsibility inherent in effective healthcare interactions.

In terms of determinants influencing adoption, the results show that while MT and GenAI tools are often used in routine treatment and follow-up appointments, healthcare professionals do not use them as often in emotionally charged or complex interactions, considering them inappropriate. Emerging from the responses is the view that certain contexts — such as delivering bad news, diagnostic conversations, treatment discussions, and advanced or end-of-life care — are not suitable for MT and GenAI use. Some professionals even extend this caution to all verbal medical interactions. These perceptions of appropriateness are shaped primarily by the severity of the medical situation and patient-related factors like cultural background and literacy, reflecting broader concerns about the adequacy of MT in complex healthcare communication. Healthcare professionals seem to be aware of the need to distinguish between low- and high-risk clinical interactions, but what is considered low or high-risk might be subjective. Moreover, the severity of the situation is not always foreseeable in advance, which further complicates the decision-making process. Healthcare professionals' selective use of MT and GenAI tools suggests an intuitive, experience-based form of risk assessment — essentially, a form of bottom-up calibration of risk. Yet, this sensitivity to communication risks is not mirrored when it comes to confidentiality and data protection, where awareness appears limited. Only a small number of respondents referred to confidentiality concerns as a factor in considering the use of MT and GenAI tools inappropriate.

Despite concerns about the appropriateness of MT and GenAI tools in certain healthcare contexts, healthcare professionals reported using them regularly — primarily Google Translate, though some have also begun using ChatGPT — mostly on their

<sup>3</sup> See, for instance, Vasquez & Javier (1991) and Leanza (2005).

<sup>4</sup> See de Boe (2015) and Valdez & Pieta (Forthcoming) for more context on language and translation policies in the Netherlands.

personal mobile phones. They often initiate their use alongside patients, perceiving low to moderate risk, and express overall high satisfaction with the tools' usefulness and the quality of their output in clinical practice. These findings are consistent with prior research (Valdez & Guerberof-Arenas, 2025) showing that migrants in the Netherlands report similarly low levels of perceived risk when using MT in healthcare encounters. This shared confidence may partly stem from the widespread availability and convenience of these tools, contributing to what Bowker (2023a: 96–97) describes as an “auto-pilot” effect, where users tend to overestimate the reliability of MT while overlooking its limitations. This also signals a deeper problem of translation unawareness,<sup>5</sup> where healthcare professionals and patients may lack sufficient understanding of how translation processes shape communication, with potentially serious implications for accuracy, trust, and patient safety.

Regarding policies or guidelines, the data point to a lack of institutional guidance, or a lack of awareness of guidance, on whether and how to use MT and GenAI tools to address language barriers with non-Dutch speakers. Most healthcare professionals reported being unaware of any formal policies or stated that none exist, leaving them to navigate these challenges individually. While a few respondents expressed the view that no additional institutional support was needed, the majority called for clearer structural resources, prioritising the development of official guidelines and policies. The lack of formal language policies places an undue burden on individual healthcare professionals, who are often left to determine the appropriateness of MT and GenAI use without training or institutional backing. This points to a broader institutional blind spot in translation awareness that raises ethical and legal questions: if miscommunication leads to compromised patient consent or care, where does responsibility lie — with the clinician, the institution, or even, as one respondent suggested, the patient? Addressing this gap is urgent, and it underscores the need to embed translation awareness and shared responsibility at the policy level.

## 6. Conclusions

This study is situated within the broader context of equitable access to public health information for migrants and explores how healthcare professionals outside the field of translation use and perceive translation technologies to facilitate such access. Effective communication with linguistically diverse patients has become a critical challenge in healthcare systems worldwide, with language barriers recognised as social determinants of health that can compromise the quality of care (Bernard et al., 2006; Liebling et al., 2020; Khoong & Rodriguez, 2022). While MT and GenAI tools hold promise in advancing the development of a “multilingual healthcare system”, governments have only recently begun to call for research on their role in addressing language barriers in increasingly

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<sup>5</sup> Translation awareness refers to the recognition by relevant agents (organisations, institutions, or individuals) of the nature, role, and potential impacts of translation (Escudero et al., Forthcoming).

multicultural and multilingual societies. That is the case of, for instance, the Dutch Ministry of Health, Welfare and Sport, which recently commissioned that “digital tools” be studied for their potential use in healthcare contexts (van Straaten et al., 2023). Yet, despite growing policy interest, the use of these technologies in clinical settings has received little scholarly attention, particularly within TIS, where their impact on healthcare communication warrants deeper examination.

In this study, we approached this gap by focusing on how healthcare professionals at Leiden’s university hospital navigate language barriers in their daily clinical practice. Through a questionnaire, we examined their use and perceptions of MT and GenAI tools in interactions with patients from diverse linguistic backgrounds.

Drawing on data from 84 healthcare professionals, the study shows that while these tools are occasionally employed in clinical practice — often perceived as carrying low-to-moderate risk and eliciting general satisfaction — their use remains selective, shaped by concerns over appropriateness in sensitive medical contexts.

The perceived low-to-moderate risk, coupled with high satisfaction, aligns with earlier findings among patients and suggests a shared confidence in these tools. Given that existing literature often discusses risk as a determinant factor in using and adopting MT in healthcare settings, it is possible that non-language professionals and patients interpret risk differently or lack the MT literacy needed to fully grasp the potential consequences. Therefore, we recommend that future studies explore how both patients and healthcare professionals conceptualise risk in linguistically discordant clinical encounters to better understand its influence on their perceptions of MT and GenAI adoption.

In addition, we argue that translation awareness — or the lack thereof — may play a role in shaping healthcare professionals’ positive perceptions of MT and GenAI tools. Despite concerns over appropriateness, these positive perceptions may reflect a limited understanding of the concept of “translation” and how translation can influence communication, trust, and, ultimately, patient safety. As Bowker (2023) notes, the “auto-pilot” effect may lead users to overestimate the reliability of MT, highlighting the need for further research into healthcare professionals’ perceptions.

Furthermore, the absence of institutional policies and guidelines contributes to the ad hoc and inconsistent nature of MT and GenAI use, raising critical questions about how best to support healthcare professionals in delivering safe and equitable communication for diverse patient populations when other alternatives, such as subsidised remote interpreting, are not available. Without clear policies, guidelines, or training, the responsibility for assessing the risks and benefits of these tools falls largely on individual clinicians and, at times, on patients themselves. This ad hoc approach risks inconsistent practices and unequal care arising across clinical contexts.

Addressing this gap requires an outward-looking approach from TIS,<sup>6</sup> which should not only examine how non-language professionals, such as healthcare providers, use and

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<sup>6</sup> For a contextualisation of the outward turn, see Bowker (2023b).

conceptualise translation and translation technologies, but also engage in active collaboration and co-development of interventions with professionals from these fields. We therefore argue for the development of interdisciplinary policies, guidelines, and training that integrate insights from healthcare communication, translation studies, and MT. Proposed solutions should not only address when and how MT can be used safely and ethically but also offer practical, user-centred guidance that reflects on the potential consequences of misunderstandings and provides targeted strategies to mitigate them.

In advancing this agenda, three broader questions come into view. The first concerns the risks of over-reliance on automated solutions. Research has drawn attention to challenges such as bias, cyber risks, digital exclusion, and the ethical implications of outsourcing public communication to automated tools (on these issues, see, for instance, Canfora & Ottmann, 2020; Moorkens, 2022; Guerberof-Arenas & Moorkens, 2023; Bowker, 2024; García González, 2024; and Orrego-Carmona & Valdez, Forthcoming). These issues must be factored into any attempt to develop responsible interventions, whether in translation policies or MT literacy.

The second concerns the role of TIS researchers and scholars. The question remains how we in TIS can move beyond producing recommendations and contribute meaningfully to their implementation — for instance, by shaping institutional or societal practices in collaboration with healthcare and policy stakeholders. The third concerns the professional landscape itself. If translation and interpreting are to play a meaningful role in supporting institutional health communication, we need to envision new professional opportunities for translators and interpreters: trained translators and interpreters could assume roles as consultants, facilitators, or trainers, equipping stakeholders with the competences needed to manage translation between authorities and multilingual communities, supporting helping institutions develop sustainable and ethical translation management practices. Future research should therefore explore the competences and frameworks that would underpin these evolving professional roles.

This study is not without limitations. First, the findings are specific to a tertiary care hospital where high-risk clinical situations are frequent. Results might differ in lower-stakes settings, such as primary care or administrative interactions, where MT use may be more routine and less constrained by concerns over appropriateness. Second, since this study was limited to a single hospital, we recommend replicating it in other hospitals to explore whether similar patterns emerge. Additionally, longitudinal studies would help track changes in the uptake of MT and GenAI tools over time and reveal whether healthcare professionals' perceptions shift. Third, the use of a self-reported questionnaire limits insight into decision-making processes, which could be better captured through interview-based methods.

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## 7. Author contributions

Conceptualization: SV; Data curation: SV; Formal analysis: SV and FvH; Funding acquisition: SV; Investigation: SV, FvH and NW; Methodology: SV, FvH and NW; Project administration: SV; Supervision: SV; Validation: SV; Visualization: SV; Writing - original draft: SV and NW; Writing - review & editing: SV.

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