Inter-Professional Communications During Follow-Up of Type 2 Diabetes Patients: An Exploratory Study

Romaric MARCILLY[a,b,1], Madleen LEMAITRE[a,c], Sonia MAALEM[a], Jan BARAN[d], Jean-Baptiste BEUSCART[a] and Paul QUINDROIT[a,1]

[a] *Univ. Lille, CHU Lille, ULR 2694 - METRICS: Évaluation des technologies de santé et des pratiques médicales, F-59000 Lille, France*
[b] *Inserm, CIC-IT 1403, F-59000 Lille, France*
[c] *CHU Lille, Department of Diabetology, Endocrinology, Metabolism and Nutrition Lille University Hospital, F-59000 Lille, France*
[d] *Department of General Practice, University of Lille, Lille, France*

Abstract. Follow-up of patients with type 2 diabetes mellitus (T2DM) involves several healthcare professionals. The quality of their communication is crucial for optimizing care. This exploratory work aims to characterize those communications and their problems. Interviews were performed with general practitioners (GP), patients and other professionals. Data were analyzed deductively, and results were structured through a people map. We performed 25 interviews. GP, patients, nurses, community pharmacists, medical specialists and diabetologists are the main actors of the T2DM patients' follow-up. Three communication issues were identified: difficulties in reaching the hospital diabetologist, delays in receiving reports, and difficulties for patient to transmit information. Results were discussed in terms of tools, care pathways and new roles to support communications during T2DM patients' follow-up.

Keywords. Diabetes mellitus, Communication, Ergonomics, Critical pathway

1. Introduction

In France, the prevalence of pharmacologically treated diabetes is 5% (i.e., more than 3 million subjects), with type 2 diabetes mellitus (T2DM) accounting for 90% of the patients [1]. The prevalence of T2DM increased by 2% per year over the period 2010-2015. Diabetes causes serious long-term complications, which can occur after 10 to 20 years of metabolic imbalance, including pathogenesis of diabetic complications, neuropathy, nephropathy, retinopathy, macrovascular complications, and miscellaneous complications [2].

In France, 87% of the patients with T2DM are managed by a general practitioner (GP) alone and do not consult a diabetologist [3]. Primary care health professionals are at the heart of the health care pathway. The health care pathway for patients with T2DM involves the coordinated delivery of health and social services to satisfy their prevention

---

[1] Corresponding Authors: Romaric Marcilly, E-mail: romaric.marcilly@univ-lille.fr; Quindroit Paul, E-mail: paul.quindroit@univ-lille.fr.

and primary care needs. This pathway involves various community, secondary, and tertiary healthcare professionals. Yet, the quality of the communication between those practitioners is an important factor for optimal care [4]. This exploratory work aims to characterize communications during the management of T2DM patients and the difficulties faced.

2. Methods

Semi-structured interviews were conducted from May to July 2022. After introducing the project and collecting participants' consent, the interviews addressed five main themes: the management of T2DM and its variability, inter-professional cooperation, communication with the hospital in the event of the patient's hospitalization, communication tools, and communication difficulties.

Participants were recruited through purposeful sampling. Purposeful sampling consists of identifying and selecting (groups of) people who have knowledge or experience of the phenomenon under study [5]. Recruitment focused initially on GPs. Then, people identified by the analysis as being involved in the process were recruited. Recruitment stopped when no new information was discovered. Interviews were audio recorded and conducted remotely or face-to-face at the convenience of the participants.

Interviews were transcribed and analyzed as they were conducted. From each interview, we extracted semantic units describing people communicating, the direction of their communications, their content and media, and their difficulties. Data were analyzed deductively from a system engineering perspective and structured through a *people map* to describe the roles involved, their interrelationships, and the media preferred [6]. Data extraction and analysis were performed by a human factors expert and cross-checked by another one. Two interviewed GPs validated the results.

3. Results

A total of 25 interviews were conducted ranging from 20 to 40 minutes: 14 GPs, 4 T2DM patients, 2 private practice nurses, 3 community pharmacists, and 2 hospital-based diabetologists.

Seven main actors were identified (Figure 1): GP, patient, medical specialist, hospital diabetologist, private practice nurse, community pharmacist, and the analysis laboratory. These actors communicate either by (e-)mail, by phone, or face-to-face during appointments, depending on the type of information to be transmitted and the context. They mainly exchange about patient condition, lifestyle, treatments, and lab results and transmit letters and reports. Temporal dependencies are not linear between actors: depending on the patients' conditions and needs of the patient, any actor can initiate communication with any other.
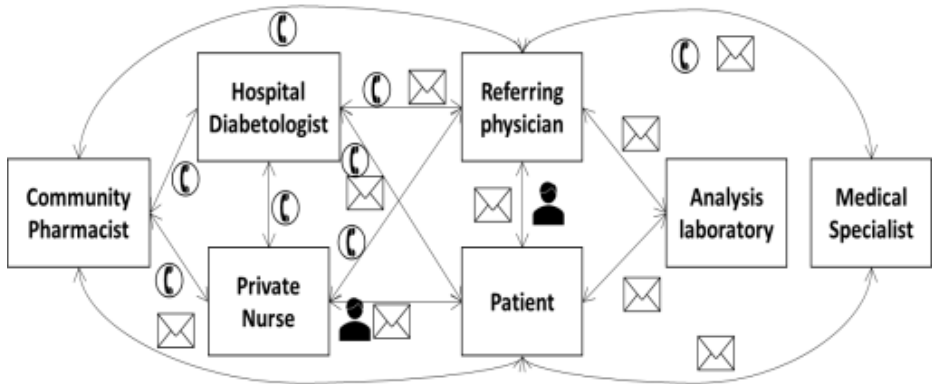
Figure 1. People map representing the communications between people involved in the management of T2DM patients. Arrows points toward the person who receives information. Icons represent the preferred mode of communication (☎, phone, ✉, mail, ♟, face-to-face)

GPs communicate with all the roles: they call the hospital when they see the patient again without having received a hospital report. They call the nurse to get information about the patient's lifestyle (activity, diet). The substitute GP may call the pharmacist for information about the patient usual treatments. The GP receives calls from hospital diabetologists who need information about the patient (history, past and current treatments, lifestyle), from nurses when a treatment no longer seems to have the desired effect, or from pharmacists in the event of doubts about a dosage or of treatment substitution. Hospital diabetologists call nurses and pharmacists to obtain information about patients' treatment or lifestyle. Pharmacists and nurses communicate on the availability of medications.

T2DM patients are a central node in the interactions between professionals. Some patients carry their medication orders with them to provide treatment information (e.g., in the event of hospitalization). Patients say that they feel responsible for passing on information between professionals and clarifying it because professionals "do not always have the information they need".

Three communication challenges were identified. First, GPs have difficulties reaching the hospital diabetologist because, for instance, of the hospital switchboard. Second, GPs do not always receive their patients' hospitalization reports on time. Sometimes, the patients inform their GP that they have been hospitalized and give them the information about the hospitalization. When GPs receive the report, they may find it incomplete (e.g., reasons for therapeutic changes). This lack of information results e.g., in prescribing tests already passed by the patient, or difficulties to optimize patient's overall treatment. Finally, T2DM patients sometimes forget to take all their orders with them to an appointment: they express difficulties to remember all their treatments and dosages accurately.

4. Discussion

Results highlight the complexity of the communications around and with the T2DM patients (Figure 1). The communication challenges identified result in increased GPs' and patient's workload, patient's responsibility for transmitting information, sub-optimal follow-up of T2DM patients (e.g., delay in treatment initiation) and rise ethical question when the GP asks the nurses information about the patient rather than directly asking the patient. The sample size in this exploratory study is small. Further studies are needed to refine the results.

Nevertheless, initial results allow us to identify several types of solutions to optimize and secure the T2DM patients' care pathway. Technological solutions (e.g., electronic patient records) should allow storing and transmitting information between professionals, and professionals and patients [7,8]. By facilitating and securing information access and transmission, these tools will support care coordination. Solutions exist [9] but technical challenges (e.g., interoperability between the information systems, data protection) [10] and ergonomic challenges (e.g., usability, acceptability) must be first overcome. Innovative care pathway solutions such as pluridisciplinary concertation meetings for drug optimization at the discharge of the patient could also facilitate the follow-up of T2DM patients: they could contribute to improve communication between GPs and hospital diabetologists and support better informed shared therapeutic decisions. New roles could also be included in the process. Advanced practice nurses (since 2018 in France) could follow patients with stabilized chronic pathologies (including diabetes) once they are discharged from hospital. Besides, they have a major role in the care coordination between healthcare professionals and patients [11].

Those instances of solutions are not mutually exclusive. They should be designed jointly in terms of roles, care pathway, and supporting information technology. The next steps will be to confirm the results and to work with representatives of patients and healthcare professionals to design together a care pathway and related roles and supporting tools with the ultimate goal of improving communication, satisfaction and patient care and safety.

References

[1] Fuentes S, Mandereau-Bruno L, Regnault N, Bernillon P, Bonaldi C, Cosson E, et al. Is the type 2 diabetes epidemic plateauing in France? A nationwide population-based study. Diabetes Metab 2020;46:472–9. https://doi.org/10.1016/j.diabet.2019.12.006.

[2] Papatheodorou K, Banach M, Edmonds M, Papanas N, Papazoglou D. Complications of Diabetes. J Diabetes Res 2015;2015:189525. https://doi.org/10.1155/2015/189525.

[3] Santé Publique France. Le poids du diabète en France en 2016. Synthèse épidémiologique. Saint-Maurice, France: 2018.

[4] Ratna H. The Importance of Effective Communication in Healthcare Practice. Harv Public Health Rev 2019;23:1–6.

[5] Creswell JW, Plano Clark VL. Designing and conducting mixed methods research. 2nd ed. Los Angeles: SAGE Publications; 2011.

[6] Holden RJ, Carayon P. SEIPS 101 and seven simple SEIPS tools. BMJ Qual Saf 2021;30:901–10. https://doi.org/10.1136/bmjqs-2020-012538.

[7] Conway NT, Allardice B, Wake DJ, Cunningham SG. User Experiences of an Electronic Personal Health Record for Diabetes. J Diabetes Sci Technol 2019;13:744–50. https://doi.org/10.1177/1932296818818837.

[8] Cunningham S, Pokrajac A, Allardice B, Brillante M, Wilson L, Wake D. My Diabetes My Way: clinical outcomes impact and user experiences for an electronic personal health record for diabetes. Future Healthc J 2019;6:13. https://doi.org/10.7861/futurehosp.6-1-s13.

[9] Merlière Y. [The shared medical record, a digital health record for all]. Soins. 2020;65(842):29–32.

[10] American Diabetes Association. Summary of Proceedings of the American Diabetes Association Summit : "Overcoming Therapeutic Inertia: Accelerating Diabetes Care FOR_LIFE." Arlington, VA: 2019.

[11] Heale R, Wenghofer E, James S, Garceau M-L. Quality of Care for Patients With Diabetes and Mulitmorbidity Registered at Nurse Practitioner-Led Clinics. Can J Nurs Res Rev Can Rech En Sci Infirm 2018;50:20–7. https://doi.org/10.1177/0844562117744137.