

# Evaluating the Impact of an Interprofessional Collaborative Approach on the Management of Gestational Diabetes Mellitus (GDM) using Telemedicine and Electronic Health Records (EHRs)

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## **Abstract:**

**Gestational diabetes mellitus (GDM) poses significant risks to maternal and fetal health, necessitating effective management strategies. This paper evaluates the impact of an interprofessional collaborative approach, leveraging telemedicine and electronic health records (EHRs), on GDM management. The integration of these components can offer improved patient outcomes, enhanced satisfaction and adherence, efficient resource utilization, and potential cost-effectiveness. However, challenges related to technology barriers, privacy concerns, reimbursement issues, workflow changes, and interprofessional collaboration must be addressed. Recommendations include stakeholder engagement, technology infrastructure investment, regulatory alignment, interprofessional education, quality improvement processes, and patient empowerment. Despite challenges, this integrated approach presents a promising opportunity to transform GDM care delivery, ensuring comprehensive, coordinated, and continuous care while improving maternal and fetal health outcomes.**

## **INTRODUCTION**

Gestational diabetes mellitus (GDM) is a prevalent condition affecting a significant proportion of pregnant women globally. It is defined as glucose intolerance that is first diagnosed during pregnancy, and it poses significant risks to both the mother and the developing fetus (Oskovi-Kaplan & Ozgu-Erdinc, 2020). The management of GDM is crucial to mitigate these risks and ensure optimal maternal and fetal health outcomes.

Traditionally, the management of GDM has been centered on frequent in-person visits for monitoring, dietary counseling, and medication adjustments. However, the advent of telemedicine and electronic health records (EHRs) has opened up new opportunities for innovative and collaborative approaches to GDM management.

This paper aims to evaluate the impact of an interprofessional collaborative approach on the management of GDM, leveraging telemedicine and EHRs. It will explore the potential benefits, challenges, and implications of this approach, drawing insights from existing literature and research.

## **Gestational Diabetes Mellitus (GDM)**

GDM is a condition characterized by glucose intolerance that develops during pregnancy, usually in the second or third trimester (Landon & Gabbe, 2011). It is estimated to affect approximately 7-14% of pregnancies

worldwide, with higher prevalence rates in certain ethnic groups and populations with higher rates of obesity and sedentary lifestyles (Sert & Ozgu-Erdinc, 2020).

The risks associated with GDM are significant for both the mother and the developing fetus. Maternal complications include an increased risk of preeclampsia, cesarean delivery, and the development of type 2 diabetes mellitus later in life (Landon & Gabbe, 2011). Fetal complications include macrosomia (excessive birth weight), birth injuries, hypoglycemia, and an increased risk of developing obesity, metabolic disorders, and type 2 diabetes in adulthood (Oskovi-Kaplan & Ozgu-Erdinc, 2020).

Effective management of GDM is crucial to mitigate these risks and ensure optimal maternal and fetal outcomes. The traditional approach to GDM management involves frequent in-person visits for monitoring, dietary counseling, and medication adjustments (Landon & Gabbe, 2011). However, this approach can be time-consuming, inconvenient, and costly for both patients and healthcare providers.

### **Interprofessional Collaborative Approach**

The management of GDM requires a multidisciplinary approach involving various healthcare professionals, including obstetricians, endocrinologists, nurses, dietitians, and pharmacists. An interprofessional collaborative approach involves effective communication, coordination, and cooperation among these professionals to ensure comprehensive and patient-centered care (Kintiraki & Goulis, 2018).

In the context of GDM management, an interprofessional collaborative approach can provide several benefits:

1. **Comprehensive care:** By involving various healthcare professionals, patients receive comprehensive care addressing various aspects of GDM management, including medical monitoring, dietary counseling, medication management, and lifestyle modifications.
2. **Improved patient education and engagement:** Collaboration among healthcare professionals can enhance patient education and engagement, leading to better understanding and adherence to treatment plans.
3. **Coordinated care:** Effective communication and coordination among healthcare professionals can prevent fragmentation of care, reduce duplication of efforts, and ensure continuity of care.
4. **Shared decision-making:** An interprofessional approach promotes shared decision-making, where patients are actively involved in their care, and treatment plans are tailored to their individual needs and preferences.

### **Telemedicine in GDM Management**

Telemedicine, the delivery of healthcare services remotely through telecommunication technologies, has gained significant traction in recent years, particularly during the COVID-19 pandemic. In the context of GDM management, telemedicine can provide several advantages (Crossen et al., 2020):

1. **Increased access to care:** Telemedicine can improve access to healthcare services for pregnant women, particularly those living in remote or underserved areas, or those with mobility challenges.
2. **Convenience and patient satisfaction:** Telemedicine eliminates the need for in-person visits, reducing travel time and costs, and potentially increasing patient satisfaction and adherence to treatment plans.
3. **Continuous monitoring and timely interventions:** Telemedicine technologies, such as remote patient monitoring devices and mobile applications, can facilitate continuous monitoring of glucose levels and other vital signs, enabling timely interventions and adjustments to treatment plans.
4. **Efficient use of healthcare resources:** By reducing the need for in-person visits, telemedicine can optimize the use of healthcare resources, including healthcare facilities, equipment, and personnel.

### **Electronic Health Records (EHRs) in GDM Management**

EHRs are digital repositories of patient health information that can be accessed, shared, and updated by authorized healthcare professionals. In the context of GDM management, EHRs can play a crucial role in facilitating an interprofessional collaborative approach and enhancing the effectiveness of telemedicine (Eisenberg et al., 2013):

1. **Centralized patient records:** EHRs provide a centralized repository for patient information, including medical history, laboratory results, treatment plans, and progress notes, enabling seamless sharing and coordination of care among healthcare professionals.

2. Decision support tools: EHRs can incorporate decision support tools, such as clinical guidelines, risk calculators, and alerting systems, to assist healthcare professionals in making informed decisions about GDM management.
3. Remote access and communication: EHRs can be accessed remotely, enabling healthcare professionals to review patient information, document clinical encounters, and communicate with patients and other team members through secure messaging systems.
4. Data analytics and quality improvement: EHRs can facilitate data collection and analysis, enabling healthcare organizations to identify areas for improvement, track patient outcomes, and implement quality improvement initiatives.

### **Integrating Telemedicine and EHRs for GDM Management**

The integration of telemedicine and EHRs can create a powerful synergy for the management of GDM within an interprofessional collaborative approach. This integrated approach can facilitate efficient communication, coordination, and decision-making among healthcare professionals while providing convenient and continuous care for patients.

For example, patients with GDM can use remote patient monitoring devices or mobile applications to regularly record their glucose levels, dietary intake, and physical activity. This data can be automatically uploaded to the EHR system, enabling healthcare professionals to review the information remotely and make timely adjustments to treatment plans.

Collaborative care plans can be developed and documented within the EHR, with input from various healthcare professionals, such as obstetricians, endocrinologists, nurses, dietitians, and pharmacists. The care plan can outline specific goals, interventions, and responsibilities for each team member, ensuring a coordinated and patient-centered approach.

Secure messaging systems within the EHR can facilitate communication among healthcare professionals and with patients, enabling timely consultations, follow-ups, and adjustments to treatment plans without the need for in-person visits.

Additionally, EHR systems can incorporate decision support tools, such as clinical guidelines and risk calculators, to assist healthcare professionals in making informed decisions about GDM management. These tools can be tailored to incorporate the latest evidence-based practices and account for individual patient characteristics and preferences.

### **Potential Benefits and Challenges**

The integration of an interprofessional collaborative approach, telemedicine, and EHRs in the management of GDM can offer several potential benefits:

1. Improved patient outcomes: By providing comprehensive, coordinated, and continuous care, this approach can lead to better glycemic control, reduced maternal and fetal complications, and improved overall health outcomes for both the mother and the developing fetus.
2. Enhanced patient satisfaction and adherence: The convenience and patient-centeredness of this approach can increase patient satisfaction and engagement, potentially leading to better adherence to treatment plans and self-management practices.
3. Efficient use of healthcare resources: By reducing the need for in-person visits and optimizing the utilization of healthcare professionals' time and expertise, this approach can contribute to more efficient use of healthcare resources.
4. Cost-effectiveness: The potential for reduced healthcare utilization, improved patient outcomes, and increased adherence can contribute to cost-effectiveness and potentially lower overall healthcare costs associated with GDM management.

**However, implementing this integrated approach also presents several challenges:**

1. Technology barriers: Access to reliable internet connectivity, digital literacy, and the availability of appropriate devices and software can be barriers for both patients and healthcare professionals, particularly in underserved or remote areas.
2. Privacy and security concerns: The use of telemedicine and EHRs raises concerns about data privacy and security, necessitating robust cybersecurity measures and adherence to relevant regulations and

guidelines.

3. Reimbursement and legal issues: Reimbursement for telemedicine services and the legal implications of providing remote care across state or national boundaries can pose challenges that require careful consideration and alignment with applicable regulations.
4. Workflow and process changes: Implementing this integrated approach may require significant changes to existing workflows, processes, and communication patterns among healthcare professionals, necessitating effective change management strategies and training.
5. Interprofessional collaboration challenges: Effective collaboration among healthcare professionals from different disciplines may be hindered by factors such as differing professional cultures, communication barriers, and a lack of clearly defined roles and responsibilities.

### **Implications and Recommendations**

The integration of an interprofessional collaborative approach, telemedicine, and EHRs in the management of GDM has the potential to transform the delivery of care and improve maternal and fetal health outcomes. However, successful implementation requires addressing various challenges and considerations:

1. Stakeholder engagement: Engaging all relevant stakeholders, including healthcare professionals, patients, healthcare organizations, policymakers, and technology providers, is crucial to ensure a collaborative and patient-centered approach to implementation.
2. Technology infrastructure and support: Investing in robust technology infrastructure, including reliable internet connectivity, secure data management systems, and user-friendly interfaces, is essential for successful implementation. Providing adequate training and technical support for both healthcare professionals and patients is also critical.
3. Regulatory and reimbursement considerations: Addressing regulatory and reimbursement barriers related to telemedicine and EHR use is necessary for widespread adoption and sustainability of this approach. Advocacy efforts and collaboration with policymakers and payers can help shape favorable policies and reimbursement models.
4. Interprofessional education and training: Promoting interprofessional education and training programs can foster effective collaboration among healthcare professionals from different disciplines, enhance their understanding of each other's roles and responsibilities, and promote a shared commitment to patient-centered care.
5. Quality improvement and evaluation: Implementing robust quality improvement processes and conducting ongoing evaluation of patient outcomes, satisfaction, and cost-effectiveness is crucial for continuous improvement and adaptation of the integrated approach.
6. Patient education and empowerment: Educating patients about the benefits and proper use of telemedicine and EHRs, as well as promoting their active involvement in shared decision-making and self-management, can enhance the effectiveness and sustainability of this approach.

### **CONCLUSION**

The integration of an interprofessional collaborative approach, telemedicine, and EHRs in the management of GDM presents a promising opportunity to improve maternal and fetal health outcomes while enhancing patient satisfaction and efficient use of healthcare resources. By

leveraging the strengths of each component, this integrated approach can facilitate comprehensive, coordinated, and continuous care for patients with GDM.

However, successful implementation requires addressing various challenges related to technology infrastructure, regulatory and reimbursement barriers, interprofessional collaboration, and stakeholder engagement. Ongoing research, evaluation, and quality

improvement efforts are essential to refine and optimize this integrated approach, ensuring its effectiveness, sustainability, and widespread adoption.

Ultimately, the goal of this integrated approach is to provide patient-centered, evidence-based, and efficient care for women with GDM, empowering them to achieve optimal maternal and fetal health outcomes while navigating the challenges of this condition.

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