Power System Technology
ISSN:1000-3673

Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

# Interdisciplinary Management of Diabetic Emergencies: The Roles of Emergency Medical Technicians, Pharmacists, and Dietitians

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**Abstract**

Diabetes mellitus places individuals at risk for acute metabolic derangements that can lead to life-threatening states. The development of diabetic ketoacidosis (DKA), hyperglycemic hyperosmolar state (HHS), hyperglycemia, and hypoglycemia are potential emergencies that require rapid assessment and intervention. Emergency medical technicians (EMTs), pharmacists, and registered dietitians are well-positioned to assist individuals experiencing these emergent conditions. Each discipline plays an essential role in the management of these acute situations from the onset of symptoms to discharge from emergency care.

Diabetic emergencies remain prevalent throughout the United States and Canada. Avoiding hospital visits or minimizing facility time are top priorities among those living with diabetes in these regions. To reduce the burden of long wait times, the number of returns for relatively simple issues, and the potential for misdiagnoses, interdisciplinary cooperation between EMT, pharmacy, dietitian, and other care systems is critical for ensuring quick, thorough service at all stages of an event. Nurses and physicians contribute to the acute-care response to hyperglycemia, yet specific and complementary roles have emerged for the other disciplines (D. Lovelace, 2019).

**Keywords:** Interdisciplinary Care, Diabetic Emergencies, Emergency Medical Technicians (EMTs), Pharmacists, Dietitians, Acute Diabetes Management

## 1. Introduction

Diabetes is a chronic condition affecting an estimated 537 million adults worldwide; it has the potential to cause debilitating complications (Gucciardi et al., 2016). Patients may present for emergency care with a variety of diabetes-related issues; these cases are sometimes

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

referred to as diabetic emergencies. An emergency medical technician (EMT) team often initiates care at the scene of a medical emergency. Interdisciplinary guidance on the management of diabetic emergencies is limited, but there is evidence that other health professionals can positively influence the care provided during these events (D. Lovelace, 2019). Coordination between EMTs, pharmacists, and especially dietitians holds promise for substantially improving outcomes in such high-risk situations (B. Ryan & S. Swift, 2014).

## 2. Overview of Diabetic Emergencies

Diabetic emergencies represent critical situations that carry a high risk of patient morbidity and mortality and significantly burden healthcare resources (Forțofoiu et al., 2021). These life-threatening outbreaks are frequent occasions for interdisciplinary collaboration among various healthcare providers, including Emergency Medical Technicians (EMTs), pharmacists, and dietitians. The increase in the incidence of diabetes and its related emergencies will, therefore, require further attention to and inclusion of interdisciplinary management associated with diabetic emergencies. Each of the contributory healthcare providers has a role to play, thus underlining the significance of interdisciplinary input. EMTs are often the first to respond to a medical emergency and perform assessment, triage, and management at the scene. By providing initial emergency care during the prehospital phases of diabetic emergencies, EMTs can significantly impact outcomes and improve continuity of care (D. Lovelace, 2019). Traditional Emergency Medical Service (EMS) protocols leave much to the discretion of EMTs investigating diabetic cases. Such discretion may be improved through guidance from the clinical pharmacist, including the proper determination of medication and administration routes, as well as the identification of substances that may lead to adverse medication events. Because glucose accumulation persists even after any diabetic assistance, dietitian input in developing a healthy nutrition plan, carbohydrate counting, and guideline-driven insulin adjustment is beneficial through all diabetes phases and necessary during the transitional phase.

Specific epidemiology and pathophysiology of diabetic emergencies remain active research topics. Since both type 1 and type 2 diabetes are risk factors for diabetic emergencies, it is vital to differentiate between these two classifications. The opportunity of interdisciplinary management of diabetic emergencies thus supports substantial illumination into the ambiguities of such emergencies. Over the past two decades, the incidence of diabetes among the world's population, especially among young children and adolescents, has increased exorbitantly. As growing awareness of the vital role of interdisciplinary collaboration to mitigate the risk of secondary complications after a diabetic emergency, cooperative management of diabetic emergencies involves dedicated input from several clinical disciplines, respectfully modulated in view of pathophysiological differences between diabetic ketoacidosis, hyperglycemic hyperosmolar state, and hypoglycemia.

Power System Technology
ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

Diabetic emergencies evoke higher call rates, longer field deployment times, and greater in-transit patient care in Emergency Medical Services. These emergencies correlate with multifaceted aspect of health systems, including service accessibility, delivery, and education. Therefore, a profound understanding of the pathophysiology, epidemiology, and relevant clinical interventions for diabetic emergencies is essential across diverse clinical disciplines for effective prevention.

## 3. Role of Emergency Medical Technicians in Acute Care

Most diabetic emergencies represent unique medical challenges that require prompt intervention. Emergency Medical Technicians (EMTs) provide both prehospital acute care and an important link between emergency departments and patients with these conditions (D. Lovelace, 2019). In particular, EMTs assess patients in the prehospital environment according to established and well-documented triage protocols. This process is crucial when patients already have significant medical comorbidities, which often is the case for diabetics who have let their disease progress too long. Emergency Medical Services guidelines for the evaluation of suspected diabetic emergencies vary from service to service, but many still emphasize the determination of Glasgow Coma Score (GCS) as part of a very basic triage system, effectively steered by the awareness of what constitutes a medical emergency rather than differentiating between pathological five- and six-point variations of GCS (Al-Salloum et al., 2020).

Several intervention protocols are well described for use in diabetic emergencies, including intravenous fluid resuscitation, the use of calcium, the use of regular insulin delivered by various routes, and nutritional prescriptions. Some insulins cannot be delivered intravenously, yet it is still theoretically possible to administer them at an intermediate rate of delivery by other routes, even in critical settings. In many jurisdictions, EMTs are permitted to start intravenous therapy without a specific patient prescription if they have already been granted with the general authority to start intravenous therapy by an independent prescriber. Consequently, some jurisdictions permit EMT provision of such therapeutic interventions when voluntarily included in standing orders.

### 3.1. Assessment and Triage in Prehospital Settings

Following standard protocols improves patient classification and enhances care without significantly increasing time spent on evaluation (D. Lovelace, 2019). Emergency services must balance time taken for prehospital care against the necessity of early preparation for emergency department handover. Management of uncontrolled hyperglycemia often relies on estimate data; even when clinically apparent, hyperglycemia may be subjective and difficult to diagnose accurately. Various environmental, medical, and national variables shape the

Power System Technology
ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

initial assessment, mandating ongoing research into effective and timely assessment protocols (Villani et al., 2017).

Prehospital assessment and triage utilize multiple data sources to classify patients in a systematic, standardised manner. Patient-related variables include the classification of diabetes type based on patient or bystander report, the scene type, and medical history. Paramedics record initial examination findings such as Glasgow Coma Score, blood glucose level, blood pressure, heart rate, and respiratory rate. Blood glucose is measured with capillary samples and point-of-care glucometers; values below or above the range are recorded as low or high, and high readings are re-coded for analysis. Treatment for hyperglycemia varies; saline, anti-emetics, oxygen, and analgesics are options, while insulin and ketone assessment remain outside the scope of Advanced Life Support (ALS) and Mobile Intensive Care Ambulance (MICA) road paramedics.

### 3.2. Immediate Interventions and Protocols

Collaborative efforts in emergency care include standardized protocols, fluid management for diabetic ketoacidosis (DKA), and education for patients and families (D Savoldelli et al., 2010). For those presenting with hyperglycemia, consistent insulin delivery is foundational, whether via continuous infusion or scheduled bolus doses (K Lacey, 2018). Oral rehydration should commence once vomiting ceases; substantial deficits are replaced intravenously in the interim (B. Ryan & S. Swift, 2014).

### 3.3. Communication and Continuity of Care

Effective communication has a direct bearing on patient safety and has recently attracted considerable attention. Thus, dissemination of information between EMTs and triage nurses or pharmacists should employ a standardized format and encourage exchange of relevant material (Al-Salloum et al., 2020). Follow-up is best accomplished through interdisciplinary interviews and collaborative documentation of findings. The Joint Commission and other agencies advocate the use of specialized tools, checklists, and techniques (D. Lovelace, 2019). Transition of care is less formalized when an emergency department records further patient information and still meets prescribing guidelines, since the subsequent dose, site, and delivery method for hydration therapies influence patient well-being. Sharing specific history details—such as concomitant allergy medications, drug doses, or even healthy snack items—and the location of stored health data fosters continuity of care and safety.

## 4. Role of Pharmacists in Acute Diabetic Care

Despite the importance of monitoring prescribed agents in diabetic emergencies, EMTs frequently lack knowledge of injectable therapeutics. Nearly a third of volunteer EMTs in Pennsylvania felt inadequately prepared to educate patients, even as pharmacists strongly endorsed the inclusion of basic medication history in EMT curricula. Furthermore, only 60%

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ISSN:1000-3673
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of pharmacists knew which medication-specific inventories were available in their own institutions, underlining the need for systematic identification of access routes and viewing healthcare professionals as a single team capable of administering further therapy in emergencies (Wojtusik Orabone et al., 2022).

Although EMTs perceive that patients seek health-system care primarily for medication communication or compliance, few reference specific agents. Children with febrile illness, menstruating females, and participants in clinical trials present similar issues regarding agent specificity, yet medication involvement remains essential. In emergencies, questions about diabetes or renal failure prompt requests for contact with physicians, whereas pharmacists remain the preferred informants for drug-related inquiries. Outpatient professionals possess detailed knowledge of patient medication histories and communication preferences, which should therefore feature explicitly in continuity-of-care protocols.

### 4.1. Medication Safety in Emergencies

Medication safety is paramount in emergencies, especially when administering anticoagulants, insulin, sedatives, or opioids. A case study exemplifies the complexities of critical medication delivery: a brachial plexus injury patient during cross-coverage required methadone but unexpected legal barriers constrained timely opioid access, risking inadequate treatment and litigation exposure (B. Ryan & S. Swift, 2014).

Pharmacists play a pivotal role in addressing barriers to critical medication therapy. The ability to assess medication indications, doses, compatibility, and supplies is fundamental for safe and appropriate drug administration (D. Lovelace, 2019).

### 4.2. Intravenous and Subcutaneous Therapeutics: Access and Administration

Access to intravenous and subcutaneous therapies requires effective teamwork, patient safety measures, and streamlined processes for insulin administration, blood glucose monitoring, and food delivery. Improving timely insulin dosing and glycemic control involves coordinated care efforts, automation to detect severe hypoglycemia, and reducing adverse drug events related to insulin. Addressing hyperglycemia from hospital admission to discharge and adhering to guidelines for medication administration are essential for safe and effective therapy (B. Ryan & S. Swift, 2014).

Improving the safety of insulin administration involves education for healthcare providers to enhance inpatient insulin delivery and post-discharge support. Proper timing of insulin doses is critical, with standards indicating doses should be given within 30 minutes to prevent hypoglycemia. A survey showed 68% of nurses administer insulin within this time frame. Insulin is essential in managing type 1 diabetes and often used in type 2. Education on insulin use is vital due to its status as a high-alert medication and the potential for severe side effects.

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Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

Proper management and timely administration are crucial for safe and effective diabetes care (Tucker & MSN RN CDE Najarian, 2015).

Assessment of hypoglycemia in diabetic patients highlights the importance of proper access and administration of intravenous and subcutaneous therapeutics. The management of insulin therapy, including basal-bolus and premixed regimens, is crucial for glycemic control. Optimization involves addressing barriers to therapy delivery and ensuring adequate metabolic control. Perioperative management of diabetic patients requires translating evidence into practice to maintain stable glucose levels. Proper storage of insulin, especially in hot climates, is essential to maintain efficacy. New insulin delivery recommendations aim to improve patient outcomes and minimize risks associated with hypoglycemia (Silver et al., 2018).

### 4.3. Education and Counseling for Patients and Caregivers

Diabetes is a chronic disease that affects millions of people and can lead to serious complications if not managed properly. Insulin is necessary for those with type 1 diabetes and, in some cases, people with type 2 diabetes. When a person experiences severe hyperglycemia, acute management is necessary to restore metabolic control and prevent significant morbidity and mortality (D. Lovelace, 2019).

Throughout a person's life, diabetes self-care education must occur, but several elements are essential at the initial diagnosis. Education should concentrate on what is diabetes, consequent problems, self-monitoring of blood glucose, a healthy diet and how it affects blood glucose, medications and how they work, and the importance of follow-up care with the health care team (Adhiambo Ogot, 2019). After any diabetic emergency, additional medication- and management-related counseling should occur to help avoid recurrent episodes. Caregivers should be advised on how to search for diabetes management information on the Internet and other sources.

## 5. Role of Dietitians and Nutrition in Emergency Management

Persons experiencing a diabetic emergency should receive an initial assessment regarding their nutritional status in the prehospital environment and during subsequent care settings. A seamless continuum of diabetic emergency management necessitates close interdisciplinary collaboration and amenable monitoring of interrelated elements of care, such as dietary intake, glycaemic targets, and insulin administration, to mitigate the likelihood of adverse glycaemic excursions. Active diabetes management should continue throughout an acute illness or diabetic emergency. Such management often entails adjusting the frequency of glucose monitoring, the quantity of carbohydrate intake, and insulin dosages, as patients may be less able to detect hypoglycaemic symptoms, develop hyperglycaemia due to inactive

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

exercise patterns, or experience increased food intake due to practices like “sick-day rules” (Amber Carney, 2010).

Dietitians play a vital role in meal planning and carbohydrate counting, typically involving a structured protocol that defines a standard eating pattern corresponding to a specific insulin regimen. Active guidance on carbohydrate allocation to specific meals or snacks according to the anticipated total carbohydrate intake and insulin regimen can enhance glycaemic control. Establishing a consumption pattern for each food group remains critical, extending beyond only carbohydrate counting considerations, due to patients continuing to monitor intake of sources such as fat and sodium to mitigate long-term microvascular and cardiovascular complications (B. Ryan & S. Swift, 2014).

### 5.1. Nutritional Assessment during Acute Illness

Patients with diabetes are generally at high risk for malnutrition, and acute illness can compromise their nutritional status even further (B. Ryan & S. Swift, 2014). Factors contributing to nutritional impairment—such as an inadequate food intake, changes to meal timing, the required special preparation of food items, nausea, vomiting, pain, and the presence of tubes—must be assessed systematically whenever emergency care is needed. A thorough, multidisciplinary evaluation ensures that patients at nutritional risk receive appropriate dietitian and clinical nutritionist counsel, outpatient follow-up, and perioperative support to optimize their nutritional well-being before, during, and after hospital admission.

### 5.2. Carbohydrate Counting, Insulin Adjustment, and Glucose Control

Carbohydrate counting (CC) can facilitate flexible meal planning for patients with diabetes mellitus and can improve postprandial glucose control in patients with type 1 diabetes (Son et al., 2014). Many hospitals regularly provide carbohydrate content on menus to promote and encourage platelet and increase the available selection of meals. Proper training therefore is essential to ensure that the counting of carbohydrates is done accurately. A substantial number of patients consume fewer than 50% of meals offered while hospitalized, leading to increased risk of hypoglycemia if mealtime insulin is not adjusted appropriately. For patients experiencing poor appetite, administration of mealtime insulin following meals can better align insulin to the amount of carbohydrate consumed, thereby reducing the risk of hypoglycemia (B. Ryan & S. Swift, 2014). Availability of more liberalized meal plans can improve nutritional status and facilitate the adequate consumption of provided meals while reducing the risk of under–nutrition. In such cases, timely glucose monitoring, proactive insulin adjustment, and frequent reassessment remain critical to the prevention of both hypoglycemia and hyperglycemia, and to the maintenance of glycaemic control.

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### 5.3. Discharge Planning and Dietary Counseling

Effective discharge planning and dietary counseling play crucial roles in diabetes management (Amber Carney, 2010). Following an acute diabetic emergency, individuals with diabetes often face ongoing challenge of glucose control. Failure to address dietary needs may increase risk of hospitalization (D. Lovelace, 2019). Post-discharge education programs led by diabetes experts further promote continued self-management after return home. Such programs help improve glycemic control levels, alter required medications, and lower risk of subsequent emergency care.

Oral feeding may resume following return to a general medical unit if the glucose level remains stable and the individual can consume sufficient carbohydrates. Patients who can eat solid food but require insulin adjustments constitute another high-risk group (B. Ryan & S. Swift, 2014).

## 6. Interdisciplinary Communication and Care Pathways

Interdisciplinary management of diabetic emergencies in community settings necessitates effective communication and collaborative care pathways among emergency medical technicians (EMTs), pharmacists, dietitians, and other stakeholders to facilitate rapid and seamless transitions of care. Coordinated communication across disciplines is imperative to optimize patient outcomes (Gucciardi et al., 2016) and it remains a key challenge in the current healthcare system. Increasingly, patients and their caregivers have been tasked with the responsibility of informing emergency responders about their condition, medications, and health history—information that is often not readily available or reliable in acute situations (D. Lovelace, 2019). The same applies to interdisciplinary communication during prehospital interventions. Coordinated verbal transitions of care through established protocols can thus mitigate such potential barriers.

Formalized communication is key to mitigating the risks associated with interdisciplinary interaction, whether at patient hand-off or during joint visits with other healthcare professionals. The definition of a standard vocabulary and establishment of programmed documentation processes have been shown to reduce misunderstanding and to maintain continuity of care. Use and enhancement of existing information technology solutions could also contribute to improved interdisciplinary communication and documentation. Finally, legal, ethical, and privacy implications must be clarified to reduce hesitation during these often-pressing interactions.

Interdisciplinary management of diabetic emergencies may be structured around consistent protocols and care bundles that specify actionable tasks for each healthcare discipline. Such bundles identify wide-ranging interventions that patients may require during urgent situations, including the adjustment of carbohydrates and insulin, fluid replacement,

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

participation in diabetes education, and prescription of metformin, statins, or oculopathy screening. Systematization of these processes permits decisions on service provision to be made without uncertainty and further promotes seamless, timely access when, for example, pharmacy or dietitian interventions occur early in a patient encounter. Communication channels among health professionals are nevertheless still kept open to ensure that medication regimens are duly integrated into the management information provided to the patient. Coordination of care bundles avoids complications arising from the predominant focus on a single health profession and remains adaptable to different combinations of team members, enabling flexibility in practice.

### 6.1. Shared Protocols and Care Bundles

Diabetes-related emergencies remain a considerable public health burden, and guidelines recommend using shared protocols and care bundles across multiple disciplines to improve diabetes management and reduce emergency department visits. Implementation of structured programs such as diabetes self-management education, outpatient follow-up, and community health worker-led initiatives positively impacts glycemic control, hospital utilization, and healthcare costs (D. Lovelace, 2019). Effective discharge communication tailored to individual patient needs and fostering patient engagement are critical for achieving better health outcomes. Coordinated diabetes-related protocols involving interdisciplinary partnerships among emergency medical technicians (EMTs), pharmacists, and dietitians address issues such as delayed treatment and prevent unnecessary emergency department (ED) visits, thus promoting better health for patients with diabetes.

Integrated approaches to addressing the mealtime challenge in hospitals—focused on the intersection of nutrition and glycemic control—also highlight the role of shared protocols and care bundles across multiple disciplines in the management of diabetes emergencies (B. Ryan & S. Swift, 2014). Efforts to reduce hypoglycemia and manage inpatient diabetes include improving the timing of blood glucose measurement, food delivery, and insulin administration; such enhancements advance on-time insulin dosing and overall glycemic control. The application of automation to detect severe hypoglycemia, identify causative factors, and inform prevention strategies is under exploration. Initiatives concerned with the avoidable harm of inpatient diabetes care target the reduction of adverse drug events involving insulin and the management of hyperglycemia from admission through to discharge. These examples underscore the importance of teamwork in implementing shared protocols and transforming care at the bedside to improve health outcomes for patients at risk of poor diabetes control.

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

### 6.2. Information Technology and Documentation

Electronic and Information Technology (EIT) systems could facilitate speedy retrieval of clinical data needed by first responders for diagnosis and treatment (Hayes & Aspray, 2010). Such data management is critical in prehospital settings, as personnel often lack access to documented patient information. In federal legislation to advance EIT, the United States government expressed commitment to the development and integration of healthcare EIT systems, work capability documentation, and statewide emergency care improvement (D. Lovelace, 2019) , further reinforcing the necessity of EIT in pharmacy practice. A transdisciplinary diabetes protocol for community pharmacy patients is an opportune first step for proactive patient care in these pre-hospital settings (B. Ryan & S. Swift, 2014). Emergency medical technicians, pharmacies, and patients can work together on subsequent clarifying details without delaying care in the interim. During an emergency, efficient and direct communication among EMTs, pharmacists, and patients could optimize continued care or advice but such a process remains largely undocumented.

### 6.3. Ethical and Legal Considerations

Nurses, dietitians, pharmacists, and emergency medical technicians all occupy critical receivership positions within current standards of care pertaining to the treatment of diabetic emergencies. As each acts simultaneously as a point of care and a transitional handoff to the next professional in the disciplinary chain, sharing explicit, protocol-driven information ensures continuity of care when patients move from one provider to the next and helps guarantee that subsequent steps are considered and integrated. Regardless of which provider a patient sees next, clear articulation of specific drug classes, dosing, patient age, patient weight, and use of adjunctive prehospital treatments like glucagon or oral glucose compounds is essential to facilitate appropriate prescribing by dietitians. Considerable variability exists between jurisdictions and circumstances regarding the authority to prescribe and dispense medication, inject drugs, and counsel patients concerning diet, nutrition, and diabetes management trends, which can lead to clinical inertia and misguided interventions if uncommunicated. As a relatively rare and specific combination of emergency involving dietary management, diabetic emergencies present a unique continuum of care and offer an accessible opportunity to explore complementary sharing of assessment, intervention, and education (D. Lovelace, 2019) ; (B. Ryan & S. Swift, 2014).

## 7. Case Studies in Interdisciplinary Management

Hypoglycemia and hyperglycemic crises, characterized by diabetic ketoacidosis (DKA) or hyperglycemic hyperosmolar state (HHS), are the most common forms of acute diabetes. Many individuals with diabetes, particularly those treated with insulin or secretagogues, are at risk for hypoglycemia (D. Lovelace, 2019). Managing these emergencies requires timely

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

access to care, rapid recognition of the problem, mitigation of the underlying causes, and urgent intervention to reverse the dangerous state. These activities form a sequence in which GTAs play an essential role and therefore lend themselves well to assessment of the Education Plan. Phases of treatment that are not directly related to the type of diabetes are only included where they contribute significantly to the urgency of the situation.

Diet- and medication-related factors can play a critical role in diabetes emergencies and influences patient readiness for discharge. Interdisciplinary communication is therefore a common thread through the description of two case studies focused on management of a hypoglycemic episode in the prehospital setting and a hyperglycemic crisis occurring in the emergency room.

A 30-year-old man with a history of insulin-dependent diabetes had been feeling unwell for 2 to 3 hours, impaired his judgment and mental faculty. He consumed approximately 6 beers over 1 hour. He was tried to settle down for the night. Ten minutes later he lost consciousness. Upon arrival, BGL was 0.6 mmol/L. He was given Dextrose 10% IV 250 ml, and after 15 min, BGL was increased to 11.3 mmol/L. Interpretation of the case would include drinking alcohol while hypoglycemic and use of another fast-acting insulin prior to sleep which involved a change in ordinary work routine.

### 7.1. Hypoglycemia in the Prehospital Setting

Hypoglycemia can occur in hospitalized patients with or without diabetes due to dysregulated metabolism or treatment. Prompt treatment is critical, especially in severe cases with neuroglycopenic symptoms or unresponsiveness. In such instances, intravenous (IV) dextrose or glucagon is appropriate. For adults, dextrose solutions ranging from 10% to 50% can be used, with 10% preferred to minimize vein irritation. Dextrose concentrations below 10% should be avoided because large volumes are required. Typical initial doses of 5–15 grams are administered slowly over 3–5 minutes, with doses of 25 grams acceptable if needed. Continuous infusions may be necessary for severe hypoglycemia. If IV access is unavailable, glucagon is the preferred alternative until IV access is established (N Lowe et al., 2022) ; (Villani et al., 2017).

### 7.2. Hyperglycemic Crisis: DKA and HHS

Diabetic emergencies involve conditions occurring primarily when patients are under or overtreated for diabetes. Poorly controlled diabetes can lead to excessive glucose in the bloodstream (hyperglycemia), marked by severe thirst, repeated urination, fatigue, and blurred vision. Hyperglycemia can ultimately progress to two severe conditions: diabetic ketoacidosis (DKA) and hyperglycemic hyperosmolar state (HHS). DKA results from relative or absolute insulin deficiency coupled with excess glucagon, leading to lipid breakdown, ketogenesis, metabolic acidosis, and potentially, coma or death. HHS is

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

associated with insulin resistance and partial insulin deficiency, marked by extreme hyperglycemia and dehydration. Although both conditions can occur in poorly controlled diabetes, a thorough review of textbooks reveals minimal literature specifically addressing the EMT's role in their management of diabetic emergencies (M. Schaapveld-Davis et al., 2017) (G Parra Villasmil et al., 2022).

### 7.3. Nutrition-Related Interventions During Emergencies

The dietary management of patients with diabetes is crucial during emergencies, both to maintain glycemic control and to ensure the intake of essential nutrients. Careful planning must consider the degree of underlying hyperglycemia or hypoglycemia and the existence of ketoacidosis. Administration of intravenous fluids and electrolytes should complement any diet-related interventions. Sodium-free hypotonic intravenous fluids (0.9% saline, dextrose-free) are usually appropriate; however, final decisions depend on clinical condition, available supplies, and specific protocols.

Despite substantial advances in some components of modern health systems, hospital emergency services still provide inappropriate diabetic care, especially concerning nutrition and fluid management. During any hospital stay, patients with diabetes benefit from nutritional assessment that considers individual habits and preferences. Current guidelines specifically mention the importance of preventive measures to stop glycemic deterioration during the intersystem transfer of people with diabetes but fail to address components such as fluid management and dietary supply (B. Ryan & S. Swift, 2014).

## 8. Research Gaps and Future Directions

Diabetes has emerged as one of the leading public health challenges in the 21st century, with approximately 537 million adults aged 20 to 79 years affected (International Diabetes Federation, 2021). Suboptimal management of diabetes may lead to acute complications, categorized as diabetic emergencies, which pose a major threat to mortality and morbidity. Given the ubiquitous nature of these emergencies, it is common for Emergency Medical Technicians (EMTs), pharmacists, and dietitians to interact with patients experiencing them (D. Lovelace, 2019).

## 9. Conclusion

The effective management of diabetic emergencies remains a significant public health concern. A coordinated interdisciplinary approach involving emergency medical technicians (EMTs), pharmacists, and dietitians can improve patient monitoring, treatment, communication, and resource allocation, potentially leading to better health outcomes. Research on the coordination of care surrounding diabetic emergencies is limited. Observation in practical settings and the review of existing protocols and case reports in the literature indicate these strategies may facilitate care in such emergencies.

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

Giovannini and Mandrioli's analysis of classified cases demonstrates the multifaceted nature of diabetes emergencies and highlights the involvement of various health professionals in prevention and treatment. In one-third of the classified cases, attending medical staff were unable to accurately identify and address acute hyperglycemia or hypoglycemia. Coordination among attending physicians, emergency medicine specialists, nurses, and hygienic diet educators benefitted patients in two-thirds of cases.

Patients with diabetes frequently experience metabolic disorders in acute care settings. These complications may arise after traumatic events and lead to deteriorating health. A study on patients with hyperglycemia sampled during normal hours emphasized the importance of timely patient assessment, emphasizing that receiving a thorough medical background is critical for offering appropriate treatment and medicine. Such indicators remain key, as exhibited by progressively invariant therapeutic choices encountered in three documented emergency hyperglycemia cases. Treatment options remain similar, with potential referral to a dietitian where minutes spent on telephone consultations may contribute greatly to patient well-being.

Diabetes-related situations among emergency patients often elude diagnosis and precise metabolic assessment, resulting in treatment protocols differing greatly across institutions, departments, and personnel involved. Lack of coordination hinders rapid patient assistance and promotes the misinterpretation of initial conditions and treatment planning. Diabetic situations tend to be overlooked at circuits involving critically ill individuals. With a deteriorating patient state and the consequent rise of successive diabetic grades, immediate protocols are generally irrelevant and counterproductive.

**References:**

1. D. Lovelace, C. (2019). Diabetes Education Referral from the Emergency Department to Improve Patient Care and Health Literacy. [PDF]
2. Gucciardi, E., Espin, S., Morganti, A., & Dorado, L. (2016). Exploring interprofessional collaboration during the integration of diabetes teams into primary care. ncbi.nlm.nih.gov
3. B. Ryan, D. & S. Swift, C. (2014). The Mealtime Challenge: Nutrition and Glycemic Control in the Hospital. ncbi.nlm.nih.gov
4. Forțofoiu, M., Mihaela Vladu, I., Forțofoiu, M. C., Pădureanu, R., Clenciu, D., Rădulescu, D., & Pădureanu, V. (2021). New strategies of diagnostic and therapeutic approach to emergencies in the evolution of patients with diabetes mellitus (Review). ncbi.nlm.nih.gov
5. Al-Salloum, J., Thomas, D., AlAni, G., & Singh, B. (2020). Interprofessional Care of Emergency Department Doctors and Pharmacists: Crossing a Collaboration Chasm. ncbi.nlm.nih.gov

Power System Technology
ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

6. Villani, M., Nanayakkara, N., Ranasinha, S., Earnest, A., Smith, K., Soldatos, G., Teede, H., & Zoungas, S. (2017). Utilisation of prehospital emergency medical services for hyperglycaemia: A community-based observational study. ncbi.nlm.nih.gov
7. D Savoldelli, R., CL Farhat, S., & D Manna, T. (2010). Alternative management of diabetic ketoacidosis in a Brazilian pediatric emergency department. ncbi.nlm.nih.gov
8. K Lacey, S. (2018). Diabetic Ketoacidosis (DKA) Insulin Infusion Protocol Update Using Evidence-Based Practice: A Quality Improvement Project. [PDF]
9. Wojtusik Orabone, A., Do, V., & Cohen, E. (2022). Pharmacist-Managed Diabetes Programs: Improving Treatment Adherence and Patient Outcomes. ncbi.nlm.nih.gov
10. Tucker, M. & MSN RN CDE Najarian, J. (2015). Improving Safety of Insulin Administration. [PDF]
11. Silver, B., Ramaiya, K., Babu Andrew, S., Fredrick, O., Bajaj, S., Kalra, S., M. Charlotte, B., Claudine, K., & Makhoba, A. (2018). EADSG Guidelines: Insulin Therapy in Diabetes. ncbi.nlm.nih.gov
12. Adhiambo Ogot, R. (2019). Staff Education Program on Diabetes Using Self-Care Behaviors. [PDF]
13. Amber Carney, T. (2010). Knowledge, comfort level and the perceived role of nurses in promoting nutritional management of diabetes. [PDF]
14. Son, O., Efe, B., Erenoğlu Son, N., Akalin, A., & Kebapçi, N. (2014). Investigation on Carbohydrate Counting Method in Type 1 Diabetic Patients. ncbi.nlm.nih.gov
15. Hayes, B. & Aspray, W. (2010). Fighting Diabetes with Information: Where Social Informatics Meets Health Informatics. [PDF]
16. N Lowe, R., Williams, B., & W Claus, L. (2022). Diabetes: how to manage patients experiencing hypoglycaemia. ncbi.nlm.nih.gov
17. M. Schaapveld-Davis, C., L. Negrete, A., Q. Hudson, J., Saikumar, J., K. Finch, C., Kocak, M., Hu, P., & A. Van Berkel, M. (2017). End-Stage Renal Disease Increases Rates of Adverse Glucose Events When Treating Diabetic Ketoacidosis or Hyperosmolar Hyperglycemic State. ncbi.nlm.nih.gov
18. G Parra Villasmil, M., Patel, S., Tansey, M., Badheka, A., & Chegondi, M. (2022). A Rare Presentation of New-Onset Type 1 Diabetes Mellitus in a Developmentally Delayed Child With an Overlap of Diabetic Ketoacidosis and Hyperglycemic Hyperosmolar State. ncbi.nlm.nih.gov