

## Management of diabetes at summer camps

*Roberta Ciambra, Chiara Locatelli, Tosca Suprani, Mauro Pocecco*

Department of Paediatrics, M. Bufalini Hospital, Cesena, Italy

**Abstract.** We report our experience in the organization of diabetic children summer-camps since 1973. Guidelines for organization have been recently reported by the SIEDP (Società Italiana di Endocrinologia e Diabetologia Pediatrica). Our attention is focused on diabetes management at camp, organization and planning, medical staff composition and staff training, treatment of diabetes-related emergencies, written camp management plan, diabetes education and psychological issues at camp, prevention of possible risks, assessment of effectiveness of education in summer camps and research at camp. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** Summer camps, management, Type 1 diabetes

### Introduction

Since Leonard F.C. Wendt, MD opened the doors of the first diabetes camp in Michigan in 1925, the concept of specialized residential and day camps for children with diabetes has become widespread throughout the U.S. and many other parts of the world (1). In Italy the first diabetic camp was organized by A. Bertelli Andretta and M. Pocecco (2). It is estimated that worldwide camps serve 15.000-20.000 campers with diabetes each summer.

The mission of camps specialized for children and youth with diabetes is to allow for a camping experience in a safe environment. An equally important goal is to enable children with diabetes to meet and share their experiences with one another while they learn to be more personally responsible for their disease. In order to ensure safety and an integrated camping/educational experience, skilled medical and camping staff must be available.

Secondary advantages of diabetes camps, recently reported by the International Society of Pediatric and Adolescent Diabetes (3) are:

1) experiential learning of social and practical skills,

- 2) gaining self-confidence and independence; feeling less isolated,
- 3) improving self-management of diabetes,
- 4) sharing experiences with other young people outside home environment,
- 5) respite for parents,
- 6) educational value for organizers.

### Diabetes management at camp

The SIEDP (Società Italiana di Endocrinologia e Diabetologia Pediatrica) has reported guidelines for the organization of diabetic children summer camps (3). The general recommendations for diabetes management at a diabetes camp are not significantly different from those which have been outlined by the American Diabetes Association as the standards of care for people with Type I diabetes (4).

### Organization and planning

Diabetes holidays are organized in many different ways and with different objectives, from predominantly educational, to sports-orientated (e.g. water sports,

skiing, specialized sports), dietetic groups, skills training (e.g. pottery, sewing, painting) and many other models. Camps may be specific for different age groups; their client group may be local, regional, national or international; they may be family weekend groups of high educational value for newly diagnosed young children; or they may be leadership outward bound holidays for adolescent.

- All group holidays must have the security of meticulous and safe planning, written guidelines, led by expert and experienced personnel with careful documentation not only of the young person's diabetic management (e.g. reduction of insulin and increased carbohydrate intake for days of high activity and the importance of BG monitoring) but also of any unexpected organizational problem.
- At the end of the camp, careful communication with parents and local medical personnel will help to highlight the successes and failures of the holiday so that the young person with diabetes can gain optimal benefit from the camping experience.

#### *Medical staff composition and staff training*

It is imperative that the medical staff be led by someone with expertise in managing type 1 diabetes. This person(s) is ultimately responsible for daily reviewing blood glucose levels and insulin logs of all campers and staff with diabetes, and to make appropriate management adjustments. This person is also responsible for overseeing all medical emergencies, and should ensure that the medical plan is integrated into the overall camping experience.

Nursing staff should include diabetes clinical nurse specialists. Registered dietitians with expertise in diabetes should also intervene in decisions regarding menu and education program. It is beneficial to include medical, nursing, and dietetic students as volunteer counselors or junior medical staff to learn not only about diabetes, but also about the needs of children with a chronic disease.

Medical staff should receive training concerning routine diabetes management and the treatment of diabetes-related emergencies (hypoglycemia, ketosis)

before camp begins. Camp policies and job descriptions for the medical staff should be understood and available in print before camp. All camp staff should be familiar with the signs and symptoms of hypo/hyperglycemia, indications for blood glucose testing, and treatment of hypoglycemia.

Supplies for routine first aid and for the treatment of intercurrent illnesses, such as allergies, asthma, sore throats, diarrhea/vomiting, and minor trauma, should be available. Diabetes supplies should be monitored and given out by responsible medical staff.

#### *Treatment of diabetes-related emergencies*

##### *Hypoglycemia*

Glucagon or intravenous glucose solutions must be available for administration by medical personnel for treatment of severe hypoglycemia. All possible measures should be taken to avoid severe hypoglycemia.

A set protocol for the treatment of mild-to-moderate hypoglycemia with oral glucose-containing solutions followed by complex carbohydrate should be followed so that hypoglycemia is consistently managed.

##### *Ketacidosis*

It is possible to treat mild-to-moderate diabetic ketacidosis at camp if this can be safely done. Oral or intravenous hydration (if vomiting) should be administered, and adequate insulin should be given to reverse ketosis, with a flow sheet produced to document the progress of the treatment regimen. Referral to an appropriate medical facility is required if vomiting and ketosis do not resolve.

#### *Written camp management plan*

A written plan that includes camp policies and medical management procedures must be available at camp. It should be written or reviewed by the camp medical director in collaboration with others, such as the camp-program director, members of the camp oversight and/or policy committees, local pediatric endocrinologists and diabetes educators, etc.

All medical staff should review this management plan before camp. The written medical management plan should include information about:

- General diabetes management;
- Insulin injections and blood glucose monitoring;
- Nutrition, timing, and content of meals and snacks;
- Routine and special activities;
- Hypoglycemia and treatment;
- Hyperglycemia/ketosis and treatment;
- Medical forms;
- Assessment and treatment of intercurrent illness;
- Pharmacy compendium;
- Universal precautions and policies for needle sticks;
- Psychological issues at camp;
- Incident/accident reporting;
- Handling of infectious wastes;
- When to notify parents/guardians; and
- Policies for camp closure and returning home.

#### *Diabetes education and psychological issues at camp*

The camp setting is an ideal place for teaching diabetes self-management skills. Education programs should be developmentally appropriate. Examples of educational topics suitable for the camp setting include:

- Insulin injection techniques;
- Blood glucose monitoring;
- Recognition and management of hypo/hyperglycemia and ketosis;
- Insulin dosage adjustment based on nutrition and activity schedules;
- Sexual activity and preconception issues;
- Carbohydrate counting;
- Diabetes complications;
- The importance of diabetes control;
- New therapies; and
- Problem-solving skills for caring for diabetes at home versus camp.

Medical personnel, with the aid of onsite psychologists/social workers if they are available, should aim at improving the psychological well-being of campers. These staff members should be willing to address specific and general psychological issues and be able to offer suggestions for the subsequent follow-up if indicated.

#### *Prevention of possible risks*

Every effort must be taken in order to prevent the risk of encouraging the formation of diabetic couples, the risk of metabolic decompensation at home (5) and the risk of isolation and learning deviant behaviours.

#### *Effectiveness assessment of education in summer camps*

Effectiveness of education during summer-camps must be assessed through the evaluation of patient knowledge and patient ability of problem solving (6). After the participation to a summer camp it is possible to measure an improvement in accuracy of self blood glucose monitoring (7) in psychosocial adaptation (8) and in quality of life (9).

#### *Research at camp*

Clinical research is often performed at diabetes camps. However, if such projects are to be done, they must not interfere with the integrity of the camping program. In addition, all studies should be approved by an institutional review board in good standing and by the camp medical and program director before the camping session. Parents and campers should have a copy of the trial protocol and the ability to contact the principal investigator before consenting to enter the trial. Informed consent must be obtained, preferably before camp.

#### **Conclusion**

Camping experience for children and young persons with diabetes is invaluable. Most camps have high return rate for campers, many of whom become counselors and staff as young adults. Thus, it is reasonable to assume that they have benefited not only from the camp experience, but also from the friendships that have developed from being in an environment where the norm is to have diabetes. Providing high-standard diabetes care is imperative to maximize the experience offered by camps specialized for children with diabetes. Using the active camping environ-

ment as a teaching opportunity is a very important way for children with diabetes to gain skills in managing their disease within the supportive camp community.

## References

1. American Diabetes Association. The Journey and the Deam. Alexandria, VA, American Diabetes Association, 1990.
2. Bertelli Andretta A, Pocecco M. Relazione su un campo estivo per giovani diabetici. *G Ital Diabetol* 1981; 1: 67-70.
3. La Loggia A, Chessa M, Cichetti M, et al. Linee guida per l'organizzazione e la conduzione di soggiorni educativo-terapeutici (campi scuola) per bambini ed adolescenti affetti da diabete. *SIEDP News* 2002, 5: I-VIII.
4. Weir GC, Nathan DM, Singer DE. Standards of care for diabetes. *Diabetes Care* 1994; 17: 1514-22.
5. Romanello C, De Campo C, Bertelli Andretta A, Pocecco M. Campaggi educativi per giovani diabetici: quale influenza sul controllo metabolico? *Acta Paed Lat* 1987; 40: 609-15.
6. Pocecco M, Pizzul MG, Tonini G, Bertelli Andretta A. Health education of insulin-dependent diabetic children. Usefulness of educative camps. *It. J Paed* 1984; 10: 764-9.
7. Pocecco M, De Campo C, Floreanini C, Cantoni L. Accuracy in estimating fasting blood glucose levels in type I diabetes patients. *Med Surg Ped* 1987; 9: 699-702.
8. Mammano ML, Bohem P, Salvatore CM, Pocecco M. Psychosocial adaptation in IDDM patients. *J Ped Endocrinol Metab* 1995, 8: 226.
9. Mancuso M, Caruso-Nicoletti M. Summer camps and quality of life in children and adolescents with Type I Diabetes. *Acta Biomedica* 2003; 74, suppl. 1: 35-7.

---

Correspondence: Dr. Mauro Pocecco  
U. O. Pediatria  
Ospedale M. Bufalini  
Viale Ghirotti, 286  
47023 Cesena (FC)  
Tel: 0547-352837  
E-mail: mpocecco@ausl-cesena.emr.it