

# Ostomy complications and clinical profile of children attending in a reference hospital

*Complicações de estomias e perfil clínico de crianças atendidas em um hospital de referência*

*Complicaciones de estomias y perfil clínico de los niños atendidos em servicio de referencia*

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## ABSTRACT

**Objective:** The aim was to study the incidence of ostomy complications in children, as well as characterize the sociodemographic and clinical profile of the children seen in the outpatient clinic. **Methods:** This is a quantitative, descriptive, prospective character study performed with 37 children between February and August 2016 at an outpatient clinic of a public hospital in Brasília, Federal District. For the statistical analysis, the categorical variables were described by absolute and relative frequencies and the quantitative variables were described by means of average and standard deviation. The chi-square test was used to verify associations between qualitative variables. **Results:** From the studied children, 56,7% had ostomy complications. The most frequent complication was contact dermatitis. **Conclusion:** Not that many studies are directed towards the children with ostomy. It is expected that the data obtained from this research can subsidize action planning on behalf of health professionals to reduce and/or avoid the complications incidence.

**DESCRIPTORS:** Postoperative complications; Ostomy; Child; Enterostomal therapy.

## RESUMO

**Objetivo:** Verificar a ocorrência de complicações de estomias em crianças, bem como caracterizar o perfil sociodemográfico e clínico das crianças atendidas no ambulatório. **Métodos:** Estudo quantitativo, descritivo, de caráter prospectivo, realizado com 37 crianças no período de fevereiro a agosto de 2016 no ambulatório de um hospital público de Brasília, Distrito Federal. Na análise estatística, as variáveis categóricas foram descritas por meio de frequência absoluta e relativa e as variáveis quantitativas por meio da média e desvio padrão. O teste qui-quadrado foi utilizado para verificar associações entre variáveis qualitativas. **Resultado:** 56,7% das crianças apresentaram complicações relacionadas às estomias. A complicação mais frequente foi a dermatite de contato. **Conclusão:** Poucos estudos são direcionados apenas para as crianças com estomias. Espera-se que os dados obtidos a partir desta pesquisa possam subsidiar o planejamento das ações dos profissionais de saúde, a fim de diminuir e/ou evitar a ocorrência destas complicações.

**DESCRITORES:** Complicações pós-operatórias; Estomia; Criança; Estomaterapia.

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## RESUMEN

**Objetivo:** Estudiar la ocurrencia de las complicaciones de ostomías en niños, así como caracterizar el perfil sociodemográfico y clínico de los niños atendidos en el ambulatorio. **Métodos:** Se trata de un estudio cuantitativo, descriptivo, de carácter prospectivo, realizado entre 37 niños en el periodo de febrero a agosto de 2016 en un ambulatorio de un hospital de la red pública de Brasilia, Distrito Federal. Para el análisis estadístico se describieron las variables categóricas por medio de frecuencia absoluta y relativa y las variables cuantitativas por medio del promedio y desvío estándar. El test chi cuadrado fue utilizado para comparar asociaciones entre variables cuantitativas. **Resultados:** De los niños estudiados, el 56,7% presentaron complicaciones relacionadas a las ostomías. La complicación más frecuente fue dermatitis de contacto. **Conclusión:** Pocos estudios están dirigidos solo a niños con estomías. Se espera que los datos obtenidos a partir de esta investigación puedan apoyar la planificación de las acciones de los profesionales de salud, a fin de evitar y/o disminuir la ocurrencia de las complicaciones.

**DESCRIPTORES:** Complicaciones posoperatorias; Estomía; Niño; Estomaterapia.

## INTRODUCTION

The process of making a stoma has an impact on the daily lives of children and their families, since it affects the body's integrity, as well as the functional capacity, social coexistence and, consequently, the quality of life of this part of the population. In addition, the adaptation to the stoma and the confrontation of this process depends on several factors such as age, gender, health status, family dynamics, lifestyle, sociocultural orientation, among others<sup>1</sup>.

Genetic diseases, traumas or congenital anomalies can evolve into respiratory, urinary and/or gastrointestinal stomata in any period of life. In the pediatric population, the most common causes that lead to the making of stomata are anorectal anomalies, congenital megacolon or Hirschsprung's disease, Crohn's disease, necrotizing enterocolitis, ulcerative rectocolitis and familiar adenomatous polyposis<sup>1,2</sup>.

Ostomy and stoma are words derived from the Greek *stóma* which means opening or mouth, indicating the surgical exteriorization of organs or hollow viscera<sup>2</sup>. Although the making of a stoma is considered a simple surgical procedure and is commonly performed, complications that are usually underestimated may occur, such as parastomal hernia, stenosis, retraction, dermatitis, among others<sup>3</sup>.

In Brazil, all individuals up to twelve years of age are considered children<sup>4</sup>. Therefore, the care provided to the child with stoma requires the involvement of family members and support from health professionals<sup>5</sup>, especially nurses, to assist them in the proper management of the stoma and its possible complications.

There are few studies that demonstrate the epidemiological data regarding children with stoma<sup>2</sup>, as well as the complications of stomata in children, revealing the need for further research in this area. Peristomal dermatitis, loop prolapse and retraction are some of the complications

observed in this clientele<sup>6,7</sup>. However, most of the published studies still refer only to the adult population, and it is often not possible to adapt the results for the pediatric population.

This study is justified by the need to investigate the occurrence of complications related to the stoma and peristomal skin in childhood, as well as to know its clinical profile, being these factors important for the planning of care, the construction of prevention strategies and the organization of health services that attend this clientele.

## OBJECTIVE

The study aimed to verify the occurrence of stoma complications in children.

## METHODS

It is a quantitative, descriptive, prospective study, carried out with 37 children attended at the Outpatient Ostomy Clinic of a public hospital in Brasília, Federal District, being this hospital unit a reference in neonatal and pediatric surgical care, both outpatient and emergency.

The sample selection was made for convenience, i.e., not random, composed of children registered for outpatient care in the period from February to August 2016. The inclusion criteria established for this study were: having a stoma (respiratory, gastrointestinal and/or urinary), regardless of the time of surgery; being between zero and incomplete twelve years of age; and having made at least two outpatient appointments. Those individuals aged 12 or older and those whose legal representatives refused to sign the Free and

Informed Consent Term (FICT) or withdrew their consent were excluded.

The data collection was carried out using an instrument prepared by researchers specifically for this purpose<sup>8</sup>. In the first month, a pilot study was conducted with 10 children to verify the adequacy of the data collection instrument and, as there was no need to adjust it, these children were included in the final sample.

The children's sociodemographic and clinical data were collected through the analysis of the electronic records, whose variables were gender, origin, date of birth, age, medical diagnosis and number of consultations performed in the outpatient clinic.

The data regarding the stomata, complications and factors associated with their appearance were also collected through the analysis of electronic medical records and direct observation of children during outpatient consultations, whose variables were types of ostomy, cause of the ostomy, length of stay, character of the stoma (definitive or temporary), prediction for reconstruction, guidance on the preparation of the ostomy, prior demarcation, use of collection equipment, occurrence and type of complication, a probable factor that caused the complication and the treatment used to solve it.

For statistical analysis the software Statistical Package for the Social Sciences (SPSS) version 23.0 for Microsoft Windows was used. The categorical variables were described by absolute and relative frequency and the quantitative variables by mean and standard deviation. The inferential statistical analysis was performed using the chi-square test to verify the association between qualitative variables. A 95% confidence interval and a 5% significance level were considered.

The research project followed the guidelines and norms established by Resolution No. 466 of 12 December 2012 of the Brazilian National Health Council<sup>9</sup>, being carried out after approval by the Research Ethics Committee of the Teaching and Research Foundation in Health Sciences, which is responsible for evaluating the merit and relevance of research projects to be developed in the ambit of the Secretary of State for Health of the Federal District and related entities, under opinion No. 1,399,909, CAAE 52299215.0.0000.5553.

## RESULTADOS

The study identified that, of the 37 children who composed the sample, the majority were male (67.6%), from the Federal District (54%), aged between two and twelve months (67.6%) and fit the category without schooling (67.6%).

Regarding the cause that led to the making of stoma in children, 73% were made due to congenital anomalies ( $n = 27$ ), 13.5% of the stomata were made by intestinal perforation ( $n = 5$ ), 8.1% had intestinal obstructions as a causal factor ( $n = 3$ ) and 5.4% were made due to probable motility disorder ( $n = 2$ ).

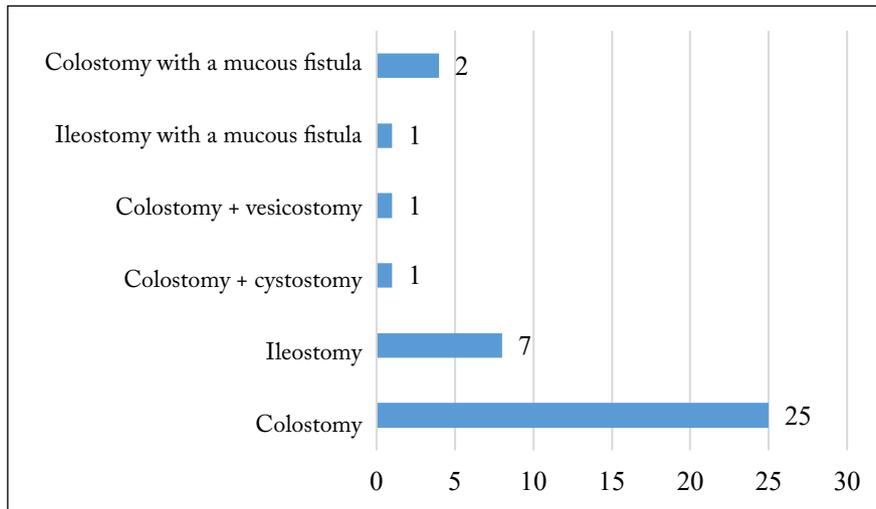
All children who participated in this study had their stomata classified as temporary, and 73% of them had no forecast for reconstruction of intestinal transit and 13.5% had 2 months forecast for reconstruction. There was no information in the medical records about the prediction for reconstruction in the case of urinary stomata. The data regarding the time the children remained with their stomata are described in Table 1.

**Table 1.** Period of permanence of stomata in the children assisted in the ambulatory - Brasília, DF - February to August 2016.

Period	Absolute frequency	Relative frequency (%)
2 months	3	8.1
3 to 4 months	6	16.2
5 to 6 months	3	8.1
7 to 8 months	6	16.2
10 to 11 months	3	8.1
12 months	9	24.4
2 years or more	7	18.9
Total	37	100.0

In this study, 86.5% of the children had only one type of stoma, 5.4% had 2 types and 8.1% had one type

of stoma accompanied by a mucosal fistula, as shown in Fig. 1.



**Figure 1.** Absolute frequency of the stomata according to the location. Brasília/DF, 2016.

Regarding previous guidance on the making of the stoma in the preoperative period, 70.2% of the parents and/or guardians of the children reported having received guidance (n = 26) and 29.8% reported not having received guidance before the surgical procedure (n = 11). About the procedure of demarcation of the stomata, 97.3% of the children did not have the confection site of the stoma demarcated and 2.7% had the site demarcated before surgery.

The children attended an average of 3.9 nursing appointments during the data collection period at the outpatient clinic and lived an average of one year and three months with the stoma. In 91.9% of the cases the children were accompanied by their mother and only 8.1% were accompanied by their father and mother.

Regarding the use of collecting equipment, 59.5% of children used collecting equipment frequently (n = 22) and 40.5% did not use it frequently (n = 15).

It was possible to observe that 21 children presented stoma complications, and in some of them more than one type of complication occurred. The cumulative incidence of stoma complications in this study was 56.7%.

Contact dermatitis was the most frequent among the complications observed (76% of the cases), as shown in Table 2. Regarding the factor that caused the complications, in 76% they occurred due to skin contact with effluents (n = 19), in 8% appeared by hypersensitivity to the adhesive base of the collecting equipment (n = 2), in 8% occurred by the surgical technique for stoma construction (n = 2) and in 8% occurred by the increase in intra-abdominal pressure (n = 2).

**Table 2.** Types of stoma complications in the studied children - Brasília/DF - February to August 2016.

Types of complication	Absolute frequency	Relative frequency (%)
Contact dermatitis	19	76.0
Allergic dermatitis	2	8.0
Retraction	2	8.0
Loop prolapse	1	4.0
Parastomal hernia	1	4.0
Total	25	100.0

Regarding the treatment used to solve the complication, in 100% of the cases products were used whose purpose was to provide a protective barrier for the peristomal skin and/or to treat dermatitis (synthetic skin protectors with powder or paste presentation). No specific products were used for the treatment of other complications presented by the children in this study.

The variables “sex” and “occurrence of complication”,

as well as “previous orientation on the making of the stoma” and “occurrence of complication” had their absolute frequencies compared and associated through chi-square test, showing that there was no significant statistical association. When the variables “use of the collecting equipment” and “occurrence of complication” were associated, a significant statistical association was observed, as shown in Table 3.

**Table 3.** Association between variables sex, previous orientation, use of collecting equipment and occurrence of complication – Brasília/DF – February to August 2016.

Sex	Occurrence of a stoma complication		p-value and relative risk
	Yes	No	
Male	15	6	p = 0,565; RR = 1,500 (0,375–5,998)
Female	10	6	
Previous guidance on the making of the stoma	Occurrence of a stoma complication		p-value and relative risk
	Yes	No	
Yes	15	12	p = 0,809; RR = 0,833 (0,191–3,644)
No	6	4	
Use of collecting equipment	Occurrence of a stoma complication		p-value and relative risk
	Yes	No	
Yes	9	13	p = 0,018; RR = 0,173 (0,038–0,795)
No	12	3	

## DISCUSSION

The predominance of male children without schooling was observed due to age, corroborating data from other studies<sup>3,6</sup>. Congenital malformations such as congenital megacolon and imperforate anus were the most frequent medical diagnoses in this study, and these are the ones that usually lead children to be submitted to the making of stomata<sup>1,6,7,10</sup>.

The imperforate anus is one of the most common anorectal anomalies and can be associated with defects in other systems, such as the urogenital tract. Usually, a colostomy is performed in the newborn and, four to six months later, an anal fistula is made, for later surgical reapproach and reconstruction of its intestinal transit<sup>11</sup>.

The congenital megacolon is a multifactorial disease that results from the absence of migration of cells from the neural crest to the large intestine, generating an absence of nerve plexus in the colon and, consequently, absence of motility in the affected segment and intestinal obstruction<sup>10,12</sup>. Other comorbidities such as necrotizing enterocolitis, inflammatory bowel diseases, as well as trauma caused by

violence or domestic accidents also lead children to become individuals with stoma, either temporarily or definitely<sup>11,12</sup>.

In the children who composed the sample of this study, there was a predominance of colostomies related to other types of stomata, corroborating data from other studies<sup>6,7,10</sup>. Some children had more than one stoma, and this is a very common condition in this clientele.

The children attended the outpatient nursing consultations accompanied, in their majority, only by their mothers and it was found that this is a recurrent characteristic in the pediatric population<sup>13,14</sup>. It is important to highlight the reduced presence of fathers in the consultations and the mothers' report about their low participation in the home care provided to children, which can interfere in the process of confronting the condition experienced by the family.

Most of the children's relatives reported having received preoperative information on the procedure to making the children's stoma. However, family members stated during the data collection that the emphasis of these guidelines was on the basic disease of the children

and its treatment, not addressing psychosocial, educational issues and the impact of having a stoma in their lives and of their caregivers.

It should be emphasized that the fact that statistically significant associations between the variables “sex” and “occurrence of complication” have not been observed, as well as the “previous guidance on the preparation of the stoma” and “occurrence of complication”, can be justified by the size of the sample in question, being necessary the development of studies with higher sampling than that studied to allow the comparative analysis of data.

Stoma complications may arise both in the immediate and late postoperative period. Early complications are usually linked to emergency ostomy surgery and late complications are linked to age, weight, stoma location, surgical technique, presence of pathologies that have as treatment the making of a stoma, among others<sup>3</sup>, and a surgical reapproach may be necessary to correct some of them.

The guidance of nurses, whether they are enterostomal therapists or qualified general nurses, should involve observation as to the stoma characteristics, local hygiene, proper selection of the collecting equipment according to the child’s age and the use of adjuvants when necessary, such as skin protectors, adhesive remover wipes, adjustable elastic belts, among others. The physical and psychosocial aspects of the child, the capacity for self-care (depending on age) and the participation of parents and/or guardians in providing assistance should also be taken into account, thus preventing the emergence of complications or facilitating their management.

Although in this study, most children used the collector equipment in their stomata, it drew attention to cases where other materials such as nonsterile gauzes or disposable diapers were used to contain the effluents, as well as a paste prepared by the children’s caregivers for the protection of the peristomal skin (basically composed of corn starch, zinc oxide and oil enriched with essential fatty acids). It was possible to observe during the consultations that the consistency of this product often made its removal difficult, protecting the tegument from direct contact with the effluents in some cases, but may generate other complications, such as abrasions on the skin, due to excessive friction during the removal of the product.

Contact dermatitis was the most frequent complication in this study, however other complications were also present, such as allergic dermatitis, retraction, loop prolapse

and parastomal hernia. Similar data are found in other researches<sup>1,6,7,10,15</sup>. Peristomal dermatitis is caused by prolonged skin contact with feces, urine or gastric content and impairs the rehabilitation process of the patient with stoma, since it interferes with the adherence of the collecting equipment. This condition can lead to the need for a larger number of collector bags and adjuvants, in addition to causing pain due to the local inflammatory process and rupture of the skin integrity, increasing the costs of management of the stoma<sup>14,15</sup>.

The synthetic resin with powder or paste presentation was the treatment used in all children who presented stoma complications, independent of the type of complication observed. Some caregivers reported using the synthetic resin in powder even in the absence of contact dermatitis, with the purpose of “preventing” the appearance of lesions, diverging from the guidelines given by the manufacturer of the product in question.

It is essential that nurses prepare a therapeutic plan based on the causal factor of dermatitis, the materials commonly used and the review of care actions performed by patients and/or caregivers, as well as the frequent evaluation of the peristomal region and of the stoma, so that care is provided in an integral and individualized manner, taking into account their needs and particularities, enabling the choice of appropriate equipment and adjuvants<sup>14,15</sup>.

The continuing education of children and their families is also an important factor in the assistance provided, since it facilitates adaptation to the new condition and contributes to the prevention of stoma complications, directly influencing the quality of life of these patients.

As a limitation of this study, the small sample size and composition can be referred to, which treated only children with intestinal and urinary stomata, since this was the characteristic of the population attended at the outpatient clinic of the hospital chosen to perform the study. Therefore, it was not possible to know the complications related to other types of stoma.

In addition, the authors did not personally observe all of the children’s appointments, since some of them attended the outpatient appointments on days or at times contrary to those scheduled for the appointments. For this reason, the collection of certain data was restricted only to the registration made by the nurses in the medical records. However, as it is a reference place in the care of children in the Federal District, including those with

stoma, the data were considered relevant to the knowledge of the clinical and epidemiological profile of a part of this population.

## CONCLUSION

Although individuals of different age groups are susceptible to the condition of having a stoma made at any stage of life, nursing care directed at children as well as health promotion and rehabilitation strategies must respect their particularities.

Thus, it is essential that the nurses seek training to serve this clientele and that the assistance includes the evaluation of the clinical conditions of the child, the demarcation of the place where the stoma will be made, the teaching of self-care or the care that will be provided by parents and/or guardians, as well as the identification of factors that may lead to the occurrence of complications and their proper management.

It is noticeable that few studies are directed only to the pediatric population and, therefore, it is suggested that future researches explore the issue of stoma complications in children, as well as their characteristics, factors associated with their appearance and the treatment employed in the management of these complications. It is expected that the data obtained from this research support the planning of

health professionals' actions in order to reduce and/or avoid the occurrence of these complications.

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## AUTHOR'S CONTRIBUTION

Conceptualization, Faria TF and Kamada I; Methodology, Faria TF and Kamada I; Investigation, Faria TF; Writing – Original Draft, Faria TF; Writing – Review and Editing, Faria TF and Kamada I; Funding Acquisition, Faria TF and Kamada I; Resources, Faria TF; Supervision, Kamada I.

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