Betel Leaves as an Alternative Method of Enterostomy Management
Parepalli S, Khundkar R, Tahmina B, Lakhoo K

Aims
1. Assess the viability of betel leaf stoma care in terms of complication rates
2. Determine whether betel leaf stoma care is a practical alternative in LICs/LMICs

Introduction
Construction of an enterostomy is a common procedure in paediatric surgery, often used as a preliminary treatment in the surgical management of many congenital and acquired conditions of the gastrointestinal tract. Indications for construction of an enterostomy in children, most commonly conditions such as Hirschsprung’s disease and anorectal malformations, are often benign or congenital in nature. Good stoma care requires a comfortable device that allows for easy collection of bowel contents whilst still protecting peristomal skin integrity. While commercially available stoma appliances have achieved this, they are too expensive for most in low-income-countries (LICs) and low-to-middle-income-countries (LMICs), and often unavailable in the required size.

Socioeconomic Impact
Patients often present in a delayed fashion in LICs/LMICs, resulting in many more ostomies than necessary. Insufficient access to surgery means patients may live with temporary ostomy bags for prolonged periods of time. These factors necessitate stoma formation in patients that may not have been necessary if they had been born in HICs. Therefore, the socioeconomic impact of ostomies is accentuated in these countries.

A study noted certain consequences of ineffective stoma care facilities:
- Extensive time investment in order to maintain odour and hygiene - job/education opportunities had to be declined
- Extensive financial investment - caregivers sold livestock/household assets to finance care
- Stigma associated - skin excoriations were a contributing factor to poor acceptance by caregivers; children often kept home from school; incidences of spousal rejection and home due to stoma stigmatised

Better, more accessible stoma care, such as the betel leaf alternative, may ease resources required from caregivers, lessening the negative impact ostomies have on a family.

1. Comparison of Complication Rates

<table>
<thead>
<tr>
<th>Current Stoma Care in LICs/LMICs</th>
<th>Challenges of Stoma Care</th>
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| Due to an inability to access commercial disposable ostomy systems, caregivers in LICs/LMICs have to rely on their own skills to create a viable alternative; the alternatives include home-made devices using pieces of plastic, jars lids, plastic bags or cloth among other materials. Anyanywu et al conducted a study in a tertiary health centre, serving 15 million people in Nigeria (LMIC), identifying a few common methods for colostomy effluent collection employed by caregivers in the absence of affordable readily available stoma care equipment. The wraparound waistband*: old cotton clothing held in place by another wrapping of clothing material

- **Improved colostomy bag**: commonly made from used food wrapper cellophane bags, held in place by adhesive tape OR cloth tied around abdomen

**Diaper collection**: old cotton clothing placed over stoma held in place by a diaper

**Betel leaf alternative**
- Traditional Stoma

<table>
<thead>
<tr>
<th>Peristomal skin excoriations</th>
<th>Wrapsaround waistbands</th>
<th>Improved colostomy bag</th>
<th>Diaper collection method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper 1: 2.6%</td>
<td>Paper 2: 20.93%</td>
<td>Paper 3: 3.22%</td>
<td>Paper 1: 50.63%</td>
</tr>
<tr>
<td>Allergic dermatitis of peristomal skin</td>
<td>Paper 1: 0.0%</td>
<td>Paper 2: 0.0%</td>
<td>Paper 1: 18.75</td>
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<tr>
<td>Mucosal Ulcerations</td>
<td>Paper 2: 8.13%</td>
<td>Paper 3: 7.69%</td>
<td>100%</td>
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**Traditional Stoma Bag**

- Stoma bag collects bowel contents
- Faceplate: rubber, plastic, or metal disc that fixes the ostomy bag to the body. Can be adhesive or non-adhesive
- Belt to secure non-adhesive faceplate OR adhesives to secure adhesive faceplate
- Also, barrier cream to protect skin from friction and adhesive damage

**Betel Leaf Stoma Bag**

- Betel leaf with hole for stoma
- Barrier cream to protect skin from friction damage

**Cost per week**: £1.33 - £49.44 for total care
**Availability**
- Of course, fitting stoma bags often unavailable
- Can be grown/embedded in culture so can be easily bought

**Ease of use**
- Caregiver needs training
- Difficult to examine wound
- Bags replaced when full
- Can be cut accordingly
- Can be grown/embedded in culture so can be easily bought
- Can be grown/embedded in culture so can be easily bought

**Reusability**
- Bowel fluid can be collected
- Stomas described in this poster cannot collect bowel fluid

**Manoeuvrability**
- Betel leaf alternative

**Betel leaf**
- A type of leaf C. Piper leaf
- Stoma bag, accessible, affordable and easily bought
- It is also used in cooking and a wrapper when chewing tobacco. In Chinese folk medicine, Ayurvedic medicine, betel leaves are used for treatment of various disorders.

**Update**
Since the referenced data was published, this type of stoma care has progressed. The image below illustrates the current structure, solving the problem of collection of bowel fluid. Many users have also stitched cellophane bags to betel leaves to collect bowel contents.

**Layers of bowel contents**