Current Trends in Home Parenteral Nutrition

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Parenteral

Routes of drug administration, which do not involve the alimentary canal

Includes:

- Intravenous
- Subcutaneous
- Intramuscular
- Inhalation
- Percutaneous
- Peritoneal*

*Encyclopaedia Britannica (except *)
NICE Nutrition Support for Adults - 2006

Nutrition Support for Adults
Oral Nutrition Support, Enteral Tube Feeding and Parenteral Nutrition

METHODS, EVIDENCE & GUIDANCE

NCEPOD - A mixed bag
An enquiry into the care of hospital patients receiving parenteral nutrition - 2010
Home Parenteral Nutrition

- Indications
- Incidence / Prevalence
- Aims
- Training
- Home care company
- Catheters / Pumps
- Complications
- Outcomes
Indications for Parenteral Nutrition
NICE – Nutrition Support for Adults 2006

- Malnourished or at risk
- inadequate or unsafe oral intake
- or short, obstructed, non-functional, inaccessible or perforated (leaking) gastrointestinal tract

Consider parenteral nutrition (D GPP)
Home Parenteral Nutrition HPN

HPN is needed for patients with acute or chronic intestinal failure in whom nutritional and/or water and electrolyte balance cannot be corrected by oral or enteral feeding and in whom PN is feasible at home

Intestinal Failure 2001
Annual BANS Report, 2011

Artificial Nutrition Support in the UK
2000 - 2010

A Report by the British Artificial Nutrition Survey (BANS), a committee of BAPEN
(The British Association for Parenteral and Enteral Nutrition)

Editor in chief: Trevor Smith

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Henderson, Sarah Jane Hughes, Henry Gowan, Phil Scott Townsend, Barry Jones, Marinos
Elias.
BANS 2013: HPN data

New: 8 / million / year
Point prevalence: 18 / million
>200% increase in new and established HPN over 5 years

34 centres reported new patients (32 in England)

43 centres reported established patients (41 in England)
Age Distribution of Adult UK HPN Patients in 2013
New Registrations and Point Prevalence (%)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>New Registrations (%)</th>
<th>Point Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>21-30</td>
<td>7.8</td>
<td>7.7</td>
</tr>
<tr>
<td>31-40</td>
<td>10.2</td>
<td>9.7</td>
</tr>
<tr>
<td>41-50</td>
<td>18.2</td>
<td>18.8</td>
</tr>
<tr>
<td>51-60</td>
<td>24.8</td>
<td>25.4</td>
</tr>
<tr>
<td>61-70</td>
<td>22.9</td>
<td>22.9</td>
</tr>
<tr>
<td>71-80</td>
<td>12.3</td>
<td>11.9</td>
</tr>
<tr>
<td>81-90</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>91-100</td>
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</table>
## Diagnostic Categories of Adult HPN, 2000 and 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>% New registrations</th>
<th>% Point prevalence</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2000</td>
<td>2013</td>
</tr>
<tr>
<td>Crohns</td>
<td>25.0</td>
<td>16.1</td>
</tr>
<tr>
<td>Ulcerative colitis</td>
<td>3.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Ischaemia*</td>
<td>14.8</td>
<td>10.4</td>
</tr>
<tr>
<td>Radiation enteritis</td>
<td>5.7</td>
<td>2.8</td>
</tr>
<tr>
<td>Pseudo-obstruction</td>
<td>4.5</td>
<td>10.0</td>
</tr>
<tr>
<td>Other…including Surgical</td>
<td>6.8</td>
<td>1.7</td>
</tr>
<tr>
<td>complications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer**</td>
<td>17.0</td>
<td>24.6</td>
</tr>
<tr>
<td>Total Gastrointestinal***</td>
<td>81.8</td>
<td>83.3</td>
</tr>
</tbody>
</table>

*Small bowel infarction due to arterial or venous thrombosis or volvulus.
**Includes Cancer of Oesophagus, Stomach, Small bowel, Pancreas, Colon, Head and neck, lymphoma and leukaemia
***Total gastrointestinal includes gastrointestinal cancers also included under “Cancer”
HPN & Cancer

• 2010 (14%)
  – 32 new patients
  – 50% GI cancers
  – 9.5% ovarian cancers

• 2013 (25%)
  – 116 new patients
  – 50% GI cancers
  – 20% ovarian cancers
<table>
<thead>
<tr>
<th>Reason</th>
<th>2000</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short bowel</td>
<td>40.9</td>
<td>37.8</td>
<td>41.6</td>
<td>38.6</td>
</tr>
<tr>
<td>Fistula</td>
<td>17.0</td>
<td>19.8</td>
<td>14.0</td>
<td>11.4</td>
</tr>
<tr>
<td>Malabsorption</td>
<td>12.5</td>
<td>18.3</td>
<td>14.0</td>
<td>17.2</td>
</tr>
<tr>
<td>Obstruction</td>
<td>9.1</td>
<td>14.1</td>
<td>19.9</td>
<td>21.8</td>
</tr>
<tr>
<td>To improve nutrition</td>
<td>11.4</td>
<td>5.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Swallowing disorder</td>
<td>5.7</td>
<td>0.4</td>
<td>1.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Other</td>
<td>3.4</td>
<td>3.8</td>
<td>8.8</td>
<td>10.1</td>
</tr>
<tr>
<td>Reason</td>
<td>% Point prevalence</td>
<td></td>
<td></td>
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<tr>
<td>-------------------------------</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2000</td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
</tr>
<tr>
<td>Short bowel</td>
<td>61.4</td>
<td>51.7</td>
<td>51.5</td>
<td>52.0</td>
</tr>
<tr>
<td>Fistula</td>
<td>6.0</td>
<td>12.3</td>
<td>9.6</td>
<td>8.3</td>
</tr>
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<td>Malabsorption</td>
<td>14.6</td>
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<td>To improve nutrition</td>
<td>4.8</td>
<td>4.6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Swallowing disorder</td>
<td>2.3</td>
<td>0.5</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Other</td>
<td>4.6</td>
<td>3.7</td>
<td>10.8</td>
<td>9.7</td>
</tr>
</tbody>
</table>
New Extended e-BANS

From 1 January 2016

Record
• Hospital admissions
• Outpatient visits
• Surgical procedures
13 Hospital submissions
12 UK and Wales

Range  3-33 in-patients (total 149)
5-325 HPN patients (total 1144)

149 In-patients (59 type II 40%)
87F, 62M
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical complications</td>
<td>56</td>
<td>38</td>
</tr>
<tr>
<td>Mesenteric infarction</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>Dysfunction</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>IBD</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Malignancy</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>DXT</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>9</td>
</tr>
</tbody>
</table>
Proportion of hospital IF patients to total HPN patients is 13%

47% going home on PN are new HPN patients

107 going home, 5 (4%) to nursing/care homes

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Already trained</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Temp nursing</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>Long-term nursing</td>
<td>51</td>
<td>47</td>
</tr>
</tbody>
</table>
Aims of Nutritional Support

Undernutrition / dehydration
- prevention
- treatment

Clear goals
- target weight
- fit for surgery
- less diarrhoea / vomiting
- stop pain with oral / enteral feeding
- no / few complications

When to stop
- oral / enteral intake resumed
- resolution (e.g. obstruction or perforation)
- adaptation
Training

• Physically fit - weight, strength, dexterity, vision
• Psychologically motivated
• Appropriate home environment

To learn
• Knowledge - asepsis, anatomy, complications
• Skills - washing, gloves, connect, disconnect
  - dressing, flush, pump
• Lifestyle - bath / shower, swimming, sports, travel
Home Care – Companies

**HPN Framework**

Delivery of
- equipment
- feed / fluid
- ancillaries
- medicines

Communication
Holiday advice / support
24 hour on call

Nursing care at home
Patients discharged on HPN with nurses doing procedures

<table>
<thead>
<tr>
<th>Years</th>
<th>Patients with nurses (n)</th>
<th>Total HPN discharges (n)</th>
<th>Nurses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-9</td>
<td>40</td>
<td>47</td>
<td>85</td>
</tr>
<tr>
<td>2009-10</td>
<td>40</td>
<td>54</td>
<td>74</td>
</tr>
<tr>
<td>2010-11</td>
<td>43</td>
<td>63</td>
<td>68</td>
</tr>
<tr>
<td>2011-12</td>
<td>58</td>
<td>67</td>
<td>87</td>
</tr>
<tr>
<td>2012-13</td>
<td>64</td>
<td>78</td>
<td>82</td>
</tr>
</tbody>
</table>

Also more waiting for reconstructive surgery.
HPN after first delivery Sept 2011

Council tax may be reduced if a room is full of medical equipment
Mobility at Home on HPN
Subclavian and Jugular lines
Connections on Central Catheter

+ + =
Patient Requirements with HPN

**Support**
- MDT - 24 hours/day (locally)
- Home care company
- Rapid admission under experts
- Reliable delivery with correct supplies (set times)
- No unannounced changes to equipment / supplies
- Other patients, PINNT, PKB

**Uninterrupted nights**
- Less volume so pass less urine
- Nights off fluid / feed
- No adverse reactions (e.g. lipids)
- No bright lights and noisy pumps
- No alarms (e.g. bubbles)
- Not thirsty (esp during the day)
Patient Requirements with HPN

Catheter / equipment
- Long-lasting (invisible catheter) free from problems
- Simple to use equipment (pumps and giving sets)
- Easy to prime giving set
- Light bag - easy to spike
- Prefilled syringes

Holidays
- Refrigeration
Complications of Parenteral Nutrition

- Insertion
  - Catheter-related: sepsis, occlusion, thrombosis
- Metabolic / Nutritional
  - Organ dysfunction: hepatobiliary, osteopathy
Survival on HPN (15 studies)
Patient on HPN has much to manage

- PN procedures
- Wound management
- Medicines (opiates)
BIFA - Position Statement
Home Parenteral Nutrition

Unit
Team
Practice
Relationships
Outcomes
Current Management of Intestinal Failure in the United Kingdom

- Post-operative ileus
- Management of dense adhesions
- Abdominal wall closure
- Enterocutaneous fistula
- Mesenteric ischaemia
- Intestinal transplantation
- Case discussions
- 4 oral presentations (from abstracts submitted)