

## Patients affected by Neurogenic Bowel Dysfunction

## Who has Neurogenic Bowel Dysfunction?

Neurogenic bowel dysfunction (NBD) is a condition associated with injury to the nerves controlling the bowel. The most common patients with NBD are spinal cord injury (SCI), multiple sclerosis (MS), spina bifida, and stroke. The occurrence of NBD within these patient populations varies but affects individuals in a physically and socially debilitating ways. Further, those patients suffering from complications of their primary condition have additional comorbidities.

|                               | Dysfunction Description  | Typical Patient  | Approximate<br>Population in US         | Chronic Complications  |
|-------------------------------|--|--|---|--|
| Spinal Cord<br>Injury (SCI)   | Damage to any part of the<br>spinal cord or nerves at the end<br>of the spinal canal which often<br>results in permanent changes in<br>strength, sensation, and other<br>bodily functions <sup>1</sup> | • Average age of<br>35.6 at injury,<br>predominantly male<br>(>78%) <sup>2</sup>   | 294,000 <sup>3</sup>                    | <ul> <li>Respiratory<sup>1</sup></li> <li>Pressure Ulcers<sup>2</sup></li> <li>Bowel &amp; Bladder<br/>Management<sup>1</sup></li> </ul>   |
| Multiple<br>Sclerosis<br>(MS) | Chronic, unpredictable, abnormal<br>immune response directed<br>against the central nervous<br>system (brain, spinal cord, and<br>optic nerves) <sup>4</sup>   | <ul> <li>Diagnosed between<br/>20-50 years of age<sup>6</sup></li> <li>Most common<br/>Caucasian with some<br/>occurrence in other<br/>ethnicities<sup>6</sup></li> <li>2-3x more common<br/>in women<sup>5</sup></li> </ul> | ~1 Million US<br>Residents <sup>6</sup> | <ul> <li>Muscle Stiffness or Spasms<sup>7</sup></li> <li>Paralysis<sup>7</sup></li> <li>Mental Challenges<sup>7</sup></li> <li>Depression<sup>7</sup></li> <li>Epilepsy<sup>7</sup></li> <li>Bowel &amp; Bladder<br/>Management<sup>6</sup></li> </ul> |
| Spina Bifida                  | Neural tube defect, "cleft spine",<br>which results in damage to the<br>spinal cord and nerves which<br>may result in physical and<br>intellectual disabilities <sup>7</sup>                           | • Infant diagnosis   | 166,000 <sup>8</sup>                    | <ul> <li>Walking &amp; Motility Problems<sup>10</sup></li> <li>Orthopedic Complications<sup>10</sup></li> <li>Cerebral Fluid<sup>10</sup></li> <li>Bowel &amp; Bladder<br/>Management<sup>9</sup></li> </ul>   |
| Stroke                        | Clot or rupture of blood vessel(s)<br>providing nutrients & oxygen<br>to the brain resulting in various<br>levels of loss of brain and<br>nervous system function <sup>10</sup>                        | <ul> <li>75% of strokes occur<br/>&gt;65 years of age<sup>11</sup></li> <li>Higher rates of<br/>occurrence in<br/>African-Americans<sup>12</sup></li> </ul>  | ~7 Million <sup>13</sup>                | For severe stroke: <sup>14, 15</sup><br>• Brain edema & seizures<br>• Mental illness (depression)<br>• Pressure Sores<br>• Paralysis<br>• Recurrent stroke<br>• Bladder (UTI) & Bowel<br>Management  |

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