BURDEN OF ILLNESS
Patient-Reported Burden of Neuropathic Pain Is Significant

Both the **intensity** of the pain and the **duration** of the condition exacerbate the patient’s burden.

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### Activities of daily living
- Reduced quality of life
- Sleep disturbances
- Drowsiness when awake

### Psychological burden
- Depression
- Psychological distress
- Difficulty in concentration

### Physical burden
- Physical disability

### Neuropathic pain

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Physical Burden
Chronic Neuropathic Pain Has a Significant Impact on Daily Functioning

BPI = Brief Pain Inventory, which scores extent pain interferes with activities in last 24 hours from 0 (does not interfere) to 10 (completely interferes)

Chronic Neuropathic Pain Significantly Impairs Quality of Life

SF-36 = Short Form 36
Patients with Peripheral Neuropathic Pain Experience Significant Comorbid Symptoms

- Difficulty sleeping
- Lack of energy
- Drowsiness
- Concentration difficulties
- Depression
- Anxiety
- Poor appetite

% patients with moderate to very severe discomfort

n = 126

Workers with Painful Diabetic Peripheral Neuropathy Have Lower Quality of Life Scores

<table>
<thead>
<tr>
<th>Quality of life scores from SF-12v2</th>
<th>Workers with painful diabetic peripheral neuropathy</th>
<th>Workers without painful diabetic peripheral neuropathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical component summary</td>
<td>39.0</td>
<td>50.5</td>
</tr>
<tr>
<td>Mental component summary</td>
<td>43.7</td>
<td>47.3</td>
</tr>
</tbody>
</table>

SF-12v2 = Short-Form 12 version 2
National Health and Wellness Survey (NHWS) 2008.
Postherpetic Neuralgia Affects Multiple Quality of Life Domains

Percentages of Participants with Postherpetic Neuralgia (n = 63) Who Reported Problems in the EuroQol EQ-5D

- Mobility
- Self-care
- Usual activities
- Pain/discomfort
- Anxiety/depression

At 90 days after rash onset

At 180 days after rash onset

Economic Burden
The Economic Burden of Neuropathic Pain Is due to Reduced Productivity and Increased Health Care Costs

- Co-morbidities (mental and physical)
- Inappropriate treatment costs
- Misdiagnosis costs
- Per guideline treatment costs

Increased Health Care Costs

- Presenteeism
- Absenteeism
- Reduced employment

Plus: indirect costs (lost productivity, wages, etc.)

Reduced Productivity

Neuropathic Pain Reduces Employment

- Retired (≥65 years): 17%
- Unemployed: 4%
- Sickness pension: 34%
- Reduced work time due to illness: 18%
- Part time work: 8%
- Full time work: 19%

Direct impact of illness on employment 52%

n = 126

Patients with Neuropathic Pain Experience Reduced Productivity at Work

80% of working patients had reduced work productivity because of their neuropathic pain.

Reduced Productivity at Work in Past 4 Weeks for Patients with Neuropathic Pain

- None of the time: 20%
- A little of the time: 27%
- Some of the time: 23%
- A good bit of the time: 7%
- Most of the time: 6%
- All of the time: 17%

n = 109 working

Pfizer Inc. Data on file, European Survey in Painful Neuropathic Disorders.
Workers with Painful Diabetic Peripheral Neuropathy Have Reduced Productivity

Patients with Neuropathic Pain Have Higher Healthcare Utilization than Those without Neuropathic Pain

<table>
<thead>
<tr>
<th></th>
<th>Patients with painful neuropathic disorder (mean ± SD)</th>
<th>Patients without painful neuropathic disorder (mean ± SD)</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits to GPs</td>
<td>6.7 ± 13.5</td>
<td>3.4 ± 8.1</td>
<td>$p &lt;0.001$</td>
</tr>
<tr>
<td>Visits to specialists</td>
<td>8.0 ± 14.0</td>
<td>3.0 ± 7.7</td>
<td>$p &lt;0.001$</td>
</tr>
<tr>
<td>GP procedures</td>
<td>5.4 ± 8.0</td>
<td>2.2 ± 3.8</td>
<td>$p &lt;0.001$</td>
</tr>
<tr>
<td>Specialist procedures</td>
<td>10.3 ± 14.8</td>
<td>3.6 ± 7.6</td>
<td>$p &lt;0.001$</td>
</tr>
<tr>
<td>Days of hospitalization</td>
<td>2.9 ± 9.4</td>
<td>1.1 ± 5.1</td>
<td>$p &lt;0.001$</td>
</tr>
</tbody>
</table>

GP = general practitioner; SD = standard deviation
Workers with Painful Diabetic Peripheral Neuropathy Have Higher Healthcare Utilization

<table>
<thead>
<tr>
<th>Resource use in the past 6 months</th>
<th>Workers with painful diabetic peripheral neuropathy (%)</th>
<th>Workers without painful diabetic peripheral neuropathy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥1 doctor visit</td>
<td>94.6</td>
<td>72.5</td>
</tr>
<tr>
<td>≥1 non-traditional healthcare visit</td>
<td>35.3</td>
<td>21.9</td>
</tr>
<tr>
<td>≥1 ER visit</td>
<td>24.6</td>
<td>11.7</td>
</tr>
<tr>
<td>≥1 hospitalization</td>
<td>18.6</td>
<td>6.0</td>
</tr>
<tr>
<td>Number of prescription medicines</td>
<td>11.0</td>
<td>1.9</td>
</tr>
</tbody>
</table>

ER = emergency room
Increasing Pain Severity Leads to Increasing Health Care Utilization in Patients with Diabetic Peripheral Neuropathy

\[ n = 255 \]

\( m\text{-BPI-DPN} = \) modified Brief Pain Inventory for DPN

Adults Aged \( \geq 20 \) Years with a Diagnosis of Shingles Have More Medical Visits

- **Physician office**: 1154 visits
- **Outpatient hospital**: 107 visits
- **Emergency room**: 157 visits
- **Inpatient hospitalization**: 33 visits

Comorbidities
Comorbid Chronic Medical Conditions* Among Patients with Painful Neuropathic Disorders

- Seizures
- Other mental health
- Renal failure
- Depression
- CHF
- COPD
- CHD
- Diabetes

*Based on health care claims
CHD = coronary heart disease; CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease
Patients with Peripheral Neuropathic Pain Experience Significant Comorbid Symptoms

- Difficulty sleeping
- Lack of energy
- Drowsiness
- Concentration difficulties
- Depression
- Anxiety
- Poor appetite

% patients with moderate to very severe discomfort

n = 126
Neuropathic Pain Is Associated with Sleep Disturbance, Anxiety and Depression

Pain

Functional impairment

Anxiety and depression

Sleep disturbances

Many Patients with Diabetic Neuropathy Have Sleep and Mental Health Comorbidities

- >1 mental health comorbidity: 16.7%
- >1 sleep comorbidity: 11.4%
- Other psychiatric disorder: 6.2%
- MDD: 4.3%
- Anxiety: 3.8%
- Other depressive symptoms: 3.6%

n = 37,133

MDD = major depressive disorder
Many Patients with Postherpetic Neuralgia Have Sleep and Mental Health Comorbidities

- >1 mental health comorbidity: 14.8%
- >1 sleep comorbidity: 6.0%
- Anxiety: 3.9%
- Other depressive symptoms: 3.2%
- MDD: 3.0%
- Other psychiatric disorder: 5.7%

n = 3551

MDD = major depressive disorder
Patients with Postherpetic Neuralgia Have Significant Pain-Related Sleep, Mood and Activity Impairment

Magnitude of Impairment on Modified Brief Pain Inventory (n = 385)

- Moderate: 4–6
- Severe: 7–10

Patients with Chronic Neuropathic Pain Have More Anxiety and Depression than Those with Chronic Pain without Neuropathic Pain.

Anxiety and depression scores were correlated with the DN4 score.
Patients with Chronic Neuropathic Pain Have More Sleep Disturbances than Those with Chronic Pain without Neuropathic Pain

Summary
Burden of Illness: Summary

- Neuropathic pain is associated with:
  - Substantial functional impairment across multiple domains
  - Reduced quality of life
  - Decreased productivity
  - Increased healthcare utilization
  - Sleep and mental health comorbidities