

# Incidence and Prevalence of Hyperhidrosis



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## KEYWORDS

• Hyperhidrosis • Primary hyperhidrosis • Secondary hyperhidrosis • Prevalence • Diagnosis

## KEY POINTS

- Hyperhidrosis is a skin disorder that causes excessive sweating and is known to significantly impair quality of life.
- Primary hyperhidrosis is most often focal, affecting the palms, soles, and axillae; thighs, gluteal, and inguinal regions may also be involved. A patient may have one affected area or multiple focal sites of hyperhidrosis occurring simultaneously.
- Approximately 2.8% of the US population is affected by hyperhidrosis.
- Secondary hyperhidrosis is usually caused by an underlying medical condition or drug.
- Secondary hyperhidrosis must be ruled out before a diagnosis of primary hyperhidrosis is made.

## INTRODUCTION

Hyperhidrosis is a skin disorder characterized by sweating in excess of what is required for thermoregulation. Hyperhidrosis can be primary or secondary in nature and may have general, regional, or focal manifestations.<sup>1</sup> Primary hyperhidrosis is most often focal and generally causes idiopathic, symmetrically bilateral excessive sweating of the axillae, palms, soles, or craniofacial region.<sup>2,3</sup> Secondary hyperhidrosis manifests most often as generalized excessive sweating that is related to an underlying medical condition or use of medication. Hyperhidrosis results in a decrease in quality of life, may cause impairment in the ability to carry out daily functions, and in some cases may increase risk of cutaneous infection.<sup>4,5</sup> Previous reports indicate that this condition affects 7.8 million people in the United States but this number may be conservative, because hyperhidrosis is both underreported by patients and underdiagnosed by health care professionals.<sup>2</sup>

Understanding the epidemiology of the disorder is critical for screening, diagnosis, and treatment.

## PRIMARY HYPERHIDROSIS

Primary focal hyperhidrosis is excessive sweating in a specific region of the body that is not caused by other medical conditions or medications.<sup>2</sup> The cause of primary hyperhidrosis is not well understood, but is thought to be due to an overactivity of the autonomic nervous system. Eccrine sweat glands, which are located in the deep dermal layer of the skin, are innervated by post-ganglionic sympathetic nerve fibers and are stimulated by the neurotransmitter acetylcholine.<sup>6</sup> In primary hyperhidrosis, it is believed that these sweat glands receive aberrant stimulation by the sympathetic fibers causing excessive sweat production, although this has not been proved. Histologic evaluation of the affected areas demonstrates normal appearing eccrine sweat glands with a normal number, size, and density of the glands. Quantity

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and function of acetylcholinesterase is also known to be normal, indicating an overabundance of neurotransmitter is not the cause.<sup>3,6–8</sup>

### **Focal Sites**

Common focal sites for primary hyperhidrosis include palms, soles, axillae, craniofacial area, inguinal area, and gluteal region. Palmar, plantar, and axillary hyperhidrosis are the most common manifestations of the disease.<sup>2</sup> Patients with primary hyperhidrosis may have one or multiple sites of involvement. For example, a patient may have palmar hyperhidrosis alone, palmar and axillary hyperhidrosis, or various other combinations of focal involvement.<sup>2,9</sup> This form of hyperhidrosis should be distinguished from generalized hyperhidrosis, and diagnostic criteria for focal hyperhidrosis can be helpful in accomplishing this. Whatever the manifestation of primary hyperhidrosis, the sweating is not related to another condition, but is itself the medical problem.<sup>9</sup>

### **Hexsel's Hyperhidrosis**

Hexsel's hyperhidrosis is a type of regional primary hyperhidrosis that is characterized by chronic excessive sweating typically found in the inguinal region, including the medial surfaces of the upper thighs, suprapubic area, external genitalia, and at times the gluteal folds and gluteal cleft.<sup>10</sup> Patients with this condition have difficulty concealing the often-embarrassing sweat-drenched clothing in this area that typically results from having the disorder. Prevalence is largely unknown due to underreporting, but the condition appears less frequently than other forms of focal hyperhidrosis. Fifty percent of patients with Hexsel's hyperhidrosis have a positive family history of some form of hyperhidrosis, suggesting an inherited mechanism.<sup>10</sup>

### **Localized Unilateral Hyperhidrosis**

Localized unilateral hyperhidrosis is usually seen as a sharply demarcated region of sweating on the forearm or forehead restricted to less than 10 cm by 10 cm. Most cases are idiopathic with no known triggering factors. The pathogenesis is unclear,<sup>11</sup> and one case report suggests that there is a hypohidrotic element to the disorder.<sup>12</sup> Less than 40 cases have been reported in the literature.<sup>13</sup>

### **Diagnostic Criteria for Primary Hyperhidrosis**

Criteria for diagnosing primary focal hyperhidrosis include focal, visible, and excessive sweating for greater than 6 months without apparent cause with 2 or more of the following criteria: sweating

that is bilateral and relatively symmetric, impairment of daily activities, frequency of at least one episode per week, age of onset less than 25 years, positive family history, and cessation of focal sweating during sleep.<sup>14,15</sup> A more recent analysis found that increasing the required criteria from 3 of 7 elements to 4 of 7 elements increases specificity (82% vs 21%) and positive predictive value (99% vs 95%). Increasing the specificity and positive predictive value further helps practitioners accurately delineate primary from secondary hyperhidrosis.<sup>1</sup> Primary hyperhidrosis that is truly generalized is rare, and the diagnosis should only be made after causes of secondary sweating are excluded. **Table 1** summarizes the criteria for diagnosis of hyperhidrosis.

### **Hyperhidrosis Prevalence**

A major study seeking to determine the prevalence of hyperhidrosis in the United States was conducted wherein 150,000 US households were sent a survey inquiring about excessive sweating. Results from the survey projected that 2.8% of the US population is affected by hyperhidrosis.<sup>2</sup> Women and men were affected equally. Of those individuals affected, 50.8% have hyperhidrosis of the axillae, a third of whom described this condition as barely tolerable or intolerable and always or frequently interfering with daily activities.<sup>2</sup> The study also revealed that only 38% of respondents had ever discussed excessive sweating with a health care professional, with women being more likely than men to have discussed the problem (47.5% vs 28.6%). These findings demonstrate that although hyperhidrosis quite negatively affects quality of life, patients may be uncomfortable asking about this topic.<sup>2</sup> Hyperhidrosis is potentially underdiagnosed and undertreated; making this diagnosis necessitates inquiry during a routine review of systems regarding sweating and how it affects the patient's quality of life.

Although Strutton and colleagues<sup>2</sup> found a discrepancy between men and women in the reporting of sweating, no difference in incidence was found between the genders. Two studies of populations abroad, however, found that men had a higher incidence of hyperhidrosis: 16.66% versus 10.66% in Japan<sup>16</sup> and 18.1% versus 13.3% in Germany.<sup>17</sup> A study of Polish students found that men reported a higher intensity of hyperhidrosis symptoms than did women,<sup>18</sup> but a contradictory study in Canadian patients found that women reported being more severely affected.<sup>19</sup> Men are more likely to complain of craniofacial hyperhidrosis and to have "additional areas" involved (ie, back, chest, abdomen, forearm, genital, and lower

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