



# MEDICAL LETTER

## 2004 Retrospective Summary of TS Literature

### Editorial

### EPIDEMIOLOGY OF TIC DISORDERS

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Several recent studies offer new insight into the epidemiology of TS. Because these studies do not resolve the question concerning the prevalence of TS in school-age children, the controversy continues. Traditionally, the prevalence of Tourette syndrome has been considered relatively rare ranging from 3 to 5 per 10,000 (Burd et al, 1986; Caine et al, 1988; Apter et al, 1993)<sup>1-2-3</sup> In a recent review prepared prior to several of the studies presented in the table below, this estimate was revised to 10 to 30 per 10,000 (Scahill et al, 2001).<sup>4</sup> Tics are considered relatively common in school-age children affecting an estimated 12% in this population (Scahill et al, 2001).<sup>4</sup> A recent study using classroom observers reported isolated or transitory tics to be as common as 24%, though the prevalence of enduring tics was estimated at 6% (Snider et al, 2002).<sup>5</sup> The Table on the next page shows the prevalence estimates for all published studies since 2000. The discrepancies across these studies, as well as differences in prior estimates, are due to several factors.

First, earlier estimates were based on clinically ascertained cases. Reliance on clinically ascertained cases means that some cases—especially mild ones—went undetected. Recent studies have tried to correct this ascertainment problem by moving out of the clinic to community samples. Not surprisingly, this sampling change has resulted in higher estimates of prevalence.

Second, several of the more recent studies have used direct parent interview and/or observation of the child to confirm the presence of tics rather than relying on patient registries to identify cases.

Third, these more recent studies have applied different diagnostic criteria for tic disorders including TS. For example, the study by Lapouse and Monk (1964)<sup>6</sup> included a randomly selected sample of 482 children (between 6 and 12 years of age) and identified 59 children (12.2%) with at least one tic and 0.4% with multiple tics. No cases

of chronic tic disorder or TS were identified. In the Isle of Wight study, Rutter and colleagues (1970)<sup>7</sup> evaluated a sample of 3000 children that included all 10- to 12-year-olds in the community. In that study 4.4% of the children were identified as having tics, but no cases of TS were identified. It seems likely that if these early community studies had used current definitions of TS, some cases would have been identified. Using DSM-III-R criteria, Costello et al (1996)<sup>8</sup> reported a prevalence of 4.2% for all tic disorders combined (Transient, Chronic Tic Disorder and TS) in school-aged children. Tourette syndrome was relatively uncommon in the range of 1 per 1000. As shown in the following Table, the prevalence of TS in more recent surveys ranges from 26 to 115 per 10,000. All but the study by Peterson et al (2001) provide higher estimates than the range put forth in the Scahill et al (2001)<sup>4</sup> review. Kurlan et al (2001) set out to ascertain a large randomly selected sample through public school rosters. Unfortunately, only 11% of the randomly selected sample agreed to participate, and there was evidence in the report that those with tics were more likely to participate. There is also evidence that newer studies are including milder cases in the estimate of prevalence. For example, of the 7 TS cases identified by Hornsey et al (2001) only 1 case had a moderate level of tics and 3 cases had minimal tics. Obviously, for disorders that are likely to reside on a spectrum, moving the threshold toward milder cases will result in an increase in prevalence. The study by Khalifa and von Knorring (2003) attempted to deal with this issue by insisting on evidence of impairment in the definition of cases. Their prevalence estimate of 60 per 10,000 is based on a relatively large sample with a respectable participation rate. Nonetheless, the findings from community-based samples suggest that TS is more common in school-age children than previously proposed and apparently goes undetected. Differences across studies are due to differences in methodology; e.g., direct observation versus parent report only, or the difference between