Questionable inflated estimate of smoking prevalence among mentally ill persons in Australia

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In December 2007 a report commissioned by the mental health organization SANE Australia, and written by Access Economics (AE), a prominent private sector consultancy, attracted considerable publicity [1]. The report's executive summary highlighted that:

> *31.8% of adults with a mental illness are daily smokers compared to 17.7% of adults without mental illness, and over one quarter of Australians (25.7%) have some form of mental illness. People with schizophrenia have a smoking prevalence rate of around 90% (de Leon and Diaz, 2005). People with a mental illness thus comprise 38.3% of all adult smokers.''*

The Australian Bureau of Statistics (ABS) 2004_05 National Health Survey reported that 21% (3.18m) of all Australians aged over 18 smoked daily [2]. If 17.7% of adults with no long-term mental illness smoke daily, this leaves 3.3% (493 782) of the adult population who are chronically mentally ill and daily smokers. Against this, 31.8% (the ABS figure for the prevalence of daily smoking in those with long-term mental illness) of 25.7% (AE's claim for the prevalence of mental illness in the adult population) equates to 8.2% (1 226 974) of Australian adults being mentally ill, daily smokers. This is an estimate that is 2.5-fold higher than the 3.3% deduced here.

How did AE arrive at this questionable estimate? There are three foundational problems in AE's analysis on which rest what is ultimately a highly inflated estimate of the prevalence of smoking by people with mental illness and the economic costs in AE's report which are based on that estimate.

First, AE's estimate of smoking prevalence among those with mental illness was calculated as follows. AE sourced the 31.8% smoking prevalence in those with mental illness from the ABS 2004_05 National Health Survey [2]. This survey reported a 10.7% prevalence of long-term mental or behavioural problems and that 31.8% of that group were smokers (i.e. 3.3% of the adult population). AE then applied this 31.8% smoking prevalence to a much larger proportion of the population (25.7% not 10.7%: an estimate 2.4-fold larger), which they defined as having mental illness. AE arrived at this 25.7% figure by estimating growth in the prevalence in mental illness since a 1997 ABS report [3]. The 1997 report found that 17.7% of people had at least one episode of a mental disorder within the past 12months.

AE thus took a smoking prevalence pertaining to those with long-term mental illness and behavioural problems and applied it to a population that would have included many people who had far less severe, often episodic or transitory mental health problems, many of which would never see them hospitalized, eligible for a disability pension or ordinarily described as being mentally ill for much of the year. Plainly, it is invalid to apply to a much broader group of people an estimate of smoking prevalence drawn from a population for which the criteria for being classified as having a mental health problem are much stricter.

Evidence from another source corroborates this concern: the 2004_05 National Drug Strategy Household Survey (NDSHS) found that around 10% of people

reported very high or high levels of psychological distress in the past 4 weeks [4]. This is approximately the same proportion of people who reported 'long-term mental and behavioural problems' in the ABS National Health Survey in the same years [2]. In the NDSHS, around 17% of smokers reported such distress compared to around 8% of non-smokers. This is less than half the 38.3% of smokers who AE estimates are 'mentally ill'.

Second, AE's extrapolations from the 1997 prevalence of any episode of mental health illness (17.7% prevalence) to obtain a 25.7% prevalence of mental illness are based on changes in hospital admissions for mental health in the years since 1997. But a rise in hospitalization rates for mental illness is not a reliable proxy for the prevalence of mental illness in a community. Admission rates may reflect many factors other than changes in prevalence of the admitting conditions. These include possible changes in community views about mental illness engendered by the massive publicity given in Australia over the past decade to depression and suicide. Many with depression who had never sought treatment may now be seeking it: the prevalence of the problem may not have changed, but what people are doing about it may have. Similarly, increasingly inadequate outpatient services may be causing increased hospitalization because of inadequate or delayed outpatient treatment. Getting admitted to hospital may be becoming the best way to receive mental health treatment in a timely manner. Such considerations severely limit the credibility of attempts to explain hospitalization rates as tracking the actual prevalence of mental illness in the community.

Third, as explained, many of those in AE's estimate of 25.7% of the adult population having some form mental illness would have spent much of the year in a normal state of mental health because their mental illness episode was transitory. For most of the year they could not have been reasonably described as being mentally ill, and accordingly the proportion of their attributable burden of tobacco-caused disease later in life that could reasonably be counted as having occurred in such mentally ill persons, would need to be radically discounted when making cost estimates.

Finally, the AE report states on page 36: 'People with schizophrenia in particular have extremely high rates of smoking, with most studies finding a prevalence rate of about 90% (de Leon and Diaz, 2005)'. This claim is vaulted to prominence in the executive summary. In the paper cited, de Leon and Diaz examined 42 studies from 20 nations [5]. The highest rate reported was 88% in 1981-82 data from a US study that involved only 24 people with schizophrenia [6]. The pooled prevalence across the 42 studies was 62%, approximately one-third less than 'around 90%' claimed by AE. Professor Mike Daube of Curtin University drew this flagrantly incorrect claim to the attention of AE in an email sent in January and received no reply (Daube M: personal communication, 2008). Citation bias operates in papers on smoking by schizophrenic people, with studies that find higher rates of smoking being cited much more than those showing lower rates [7].

The 2004-05 National Health Survey finding that 3.3% of the adult population have long-term mental health problems and smoke daily means that there were then just short of half a million Australians in this situation [2]. Half a million represents approximately 16% of all daily smokers, contrasting with AE's estimate of 38.3% of all adult smokers. AE's estimate of there being 'over 1.25m who have some form of mental illness . . . and who also smoke' (my emphasis) is thus some 2.46-fold larger, sweeps an extra three-quarters of a million people into headlines about the number of people who smoke and are allegedly 'mentally ill'. AE thus counts as 'mentally ill' those who have chronic mental illness as well as those who may have had nothing but a transitory episode of anxiety or

depression. Half a million mentally ill people who smoke is self-evidently high enough to warrant significant attention. Using the highly questionable estimation strategies just described to inflate half a million to 1.25m does a disservice to evidence-based efforts to describe and address the problem.

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