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Overdiagnosis – overtreatment

"Medical science has made such tremendous progress that there is hardly a healthy human left" – Aldous Huxley.

American Diabetes Association 2010 guidance on the diagnosis of pre-diabetes, if implemented worldwide, could create a potential epidemic, with over half of Chinese adults in China, around 493 million having pre-diabetes [1].

It appears that medicine is out of control. Throughout history, unscrupulous people have preyed on our universal fears of suffering and death and made money by selling dubious remedies. The hope that the growing scientific foundation for medical practice would consign such activity to historical oblivion has proved to be in vain. Indeed, contemporary enthusiasm for the commercialization and marketing of healthcare seems to offer ever wider opportunities to sell medical treatments. Our newspapers regularly publish details of operations done in private and state hospitals claiming to be innovative with the pictures of the involved doctors. Newspapers and electronic media are used for advertising health screening packages when their value is still uncertain. The results of medical research are often distorted or suppressed for commercial gain, and systems that attempt to control clinicians' behaviour through payment by results, drive overdiagnosis and overtreatment [2, 3].

Patients experience well documented harms as more often financial imperatives are allowed to trump clinical judgment. Harm is also caused by well meaning doctors trying to save lives by diagnosing serious conditions earlier which inevitably drives up overdiagnosis and overtreatment [4]. Well meaning doctors, patients, politicians, and journalists consistently overestimate the benefits and underestimate the harms of most medical treatments. Doctors are now busy managing the risk factors, incidentalomas and the worried well. Concern about harms and costs of overtreatment had been gaining momentum. The most important reason for overtreatment is overdiagnosis. There is growing evidence that overdiagnosis can be harmful. New technologies mean that ever more sensitive tests can detect minor insignificant abnormalities.

Widening definitions of disease and falling treatment thresholds capture more and more people into the net of medicalisation of "normal" people [5]. This will result in people with very low risks given medical labels and subjected to lifelong treatment that will benefit only a very few. Changing diagnostic criteria for many conditions are causing virtually the entire elderly population to be classified as having at least one chronic condition, if nothing else the andropause or testoestorone deficiency. Diabetes, osteoporosis, cancer screening, asthma, chronic kidney disease and hyperlipidaemia are some of the conditions where overdiagnosis and overtreatment are very well seen. Low diagnostic thresholds and the 'evidence' that early use of disease modifying drugs reduce joint disease in rheumatoid arthritis have resulted in

the use of these expensive and toxic drugs even in patients with aches and pains. Same can be said about many patients with vague chest and abdominal pain who are labeled coronary artery disease and are subjected to unnecessary procedures. Mental disorders are another area where medicalisation of normal conditions is rampant. New edition of DSM-5 has created major controversy in their definitions of disorders. Premenstrual dysphoric disorder (PMDD) is one such condition without any scientific basis being treated with antidepressants.

In diabetes care, successive reductions in diagnostic thresholds and the creation of the condition of so-called pre-diabetes have both added to the likely harm of overenthusiastic glycaemic control. The numbers who will fail to benefit from glucose lowering are likely to be even larger in a lower risk population – such as those diagnosed by screening or at a lower diagnostic threshold. Experts argue that expensive drugs under patent protection are unnecessary for good diabetes control. WHO 2011 essential medicines list has only four diabetic drugs and the first line drugs recommended by NICE are available at low cost from generic producers. But in many poor countries drug budgets are overspent, drugs run out of stock and patients are forced to buy their supplies at high prices at private pharmacies. Due to the rapidly rising prevalence of diabetes in low and middle income countries partly due to overdiagnosis, these countries have become the emerging market for the drug industry [6]. The consequence is intensive promotion of drugs that are not included in the WHO essential medicines list, such as analogue insulins, and newer hypoglycaemic agents for type 2 diabetes, which cost up to 40 times the price of metformin – but without any one of them having been shown to improve hard outcomes such as the risk of cardiovascular disease and blindness [7]. Several systematic reviews have concluded that analogue insulins provide no convincing advantages over human insulin.

In a recent article in the *Medical Journal of Australia* on disease mongering, authors criticize the role of drug industry sponsored disease awareness campaigns linking vague and normal symptoms such as low libido and lack of energy to low testosterone levels [8]. By expanding the boundaries of this disease to common symptoms in ageing males, drug companies seek to increase their markets. As a result an almost twofold increase in use of testosterone preparations – even gels, has occurred in US, Europe and Australia. It is now being debated whether we should allow drug companies to run or sponsor disease awareness campaigns aiming to promote their products directly or indirectly. We have seen this occurring openly in our country in relation to osteoporosis and bone health – another new entity. Expanded definitions of osteoporosis mean many low risk patients are overtreated resulting possible net harm. Single-issue clinics such as memory clinics, pain clinics too should be discouraged as these too help to push this agenda.

In a book titled Overdiagnosed published in 2011, the authors estimate that many people diagnosed and treated long term for near normal elevations of cholesterol (estimates of up to 80%) or near normal osteoporosis may be overdiagnosed, in the sense that they would never have experienced the events their treatments are designed to prevent. Other studies have shown that 30% of people diagnosed with asthma may not have asthma and upto 66% of them may not require treatment. Systematic reviews of breast cancer screening have suggested that up to a third of screening detected cancers may be overdiagnosed. This trend is also seen with PSA screening for prostate cancer and also in thyroid cancers. Controversial newer definitions in abnormal renal functions classify almost 1 in 8 as having chronic kidney disease, and more than 10% of adults in USA are now classified as having some form of CKD. Expanded definition of gestational diabetes makes 1 in 5 pregnant mothers to be having gestational diabetes.

Our cultural norm is that patient satisfaction is related to increased access to tests and treatments, even though unwanted care may be associated with more harm. By 'medicalising' normality and expanding the boundaries of treatable illness, and therefore the number of potential patients, many groups, not least pharmaceutical companies, private clinics, hospitals and doctors, stand to benefit. But this is at considerable costs – the risk of iatrogenic illness, the waste of limited resources especially in poor countries, and the diversion of resources from the treatment of more important diseases. This is bad medicine.

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