The problem is that diagnoses reported in EMRs most often do not capture the changes in the way hypercholesterolaemia is defined or treated, which blurs the analysis of genuine trends in risky blood lipid profile.

**Conclusion: high accessibility vs. high quality?**

With the development of information technology and EMRs, data from health care providers have become highly accessible, which offers fantastic opportunities for the surveillance of chronic diseases. Nevertheless, the high accessibility does not imply a high quality of data, on the contrary. EMR data should be used with caution: they, indeed, do not speak for themselves. As underlined, surveillance bias and overdiagnosis recall that data from health care providers convey complex health events not defined in a standardized way. At the dawn of the digital era, providing useful information from health care providers for public health surveillance requires more than ever a critical eye on EMR-based surveillance system.

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**All data and all diagnoses deserve a critical eye**

I agree completely with the conclusion of this article that ‘providing useful information from health care providers for public health surveillance requires more than ever a critical eye on EMR-based surveillance systems’. But at the same time I advocate ‘a critical eye’ for everything and certainly for all data. We can easily be bewitched by numbers into thinking that they have a precision and validity that we never expect from words, but numbers need to be treated as cautiously as words. Where do they come from? Was there collection quality assured? Were data missing? What biases are at work? Are they timely? If they have been ‘adjusted’, how well have they been adjusted?

**The Need for a Critical Eye**

I am writing this in a country (the UK) and on a day (17 March 2013) when data collected from routine systems in hospitals are on the front page of our newspapers.1 Professor Brian Jarman says that 20 000 people may have died prematurely in a few English hospitals and that the government ignored the signals from the data.1 Jarman has for many years been producing hospital standardized mortality ratios (HSMRs), ‘the ratio of the observed to expected deaths, multiplied by 100, with expected deaths derived from statistical models that adjust for available case mix factors such as age and comorbidity’.2

HSMR is on our front pages because a high ratio signalled that something was badly wrong in Mid Staffordshire National Health Service (NHS) Trust, a hospital in the Midlands of England. The high ratio together with other signals of poor performance led to the discovery that care in the hospital had fallen way below acceptable standards and that there had been perhaps 2000 excess deaths. For many people, this ‘proved’ the usefulness of the HSMR and has led to a call for all other hospitals with high HSMRs to be investigated.

But, as those who developed the HSMR argue themselves, the ratios need to be interpreted with a critical eye.2 There are problems with the numerator, denominator, risk modelling, interpretation and coding, and some epidemiologists have argued that they are so misleading as to be useless.3,4

All of this matters greatly because several hospitals are now being investigated because of persistently high HSMRs and because one of the main ways that the NHS, currently undergoing yet another re-organization, plans to regain its reputation is through making transparent data about everything that is happening in the NHS. We can at least know most of the time whether patients are dead or alive (although not always accurately), but when it comes to subtler diagnoses, there is much room for misinterpretation, as Chiolero and others show. The expectation in the NHS is that many of the data will come from electronic medical records in real time. Many critical eyes will be needed.

**Overdiagnosis and Moving from Treatment to Prevention**

The great epidemiologist Geoffrey Rose, who had a gift for sound bites, said that there is no disease you either have or do not have, except perhaps rabies and sudden death. With everything else, you might have a little of it or a lot of it. So disease thresholds are arbitrary and can be moved backwards and forwards. Defining normal is also famously difficult. Using a definition of normal as
being within 2 standard deviations of the mean has the consequence
that every time we apply a measure to a population, 5% of people
are ‘abnormal’. Another definition of abnormal is that point at
which a person might have an increased risk of developing a
disease or dying. As virtually all of us have blood pressures and
blood lipid profiles that increase our risk of heart attacks or
strokes compared with humans living as Stone Age people lived,
we are all abnormal or ‘sick’. I used to be the editor of the British
Medical Journal and just before I left the journal in 2004, I read an
article pointing out that by current definitions of increased risk,
almost all Norwegians were sick. Yet this is a country with one of
the highest life expectancies in the world and one that has increased
dramatically in the past 30 years. How can it be that Norwegians are
sicker but living longer than ever?

Ludwig Wittgenstein, the Austrian philosopher, said that
ultimately all problems are linguistic problems—and that is
perhaps the case here. If we think of somebody with a raised
blood pressure as having a disease and being sick, then we
clearly have a problem of overdiagnosis. Many doctor colleagues
do not like the creation of ‘new diseases’ like prediabetes and
prehypertension and think that this is gross medicalization and
that doctors should stick to treating the ‘sick’ and not be
diverted by the ‘worried well’. At the same time, epidemiological
friends insist that there are no such diseases as hypertension or
diabetes but that raised blood pressure or blood sugar are simply
markers of risk for heart attacks, stroke and other vascular
complications.

I have been fretting about this because the company I work for,
the UnitedHealth Group, has developed a cost-effective programme
for ‘treating’ people with prediabetes to stop, or least delay, some of
them from developing full diabetes. Those at risk of prediabetes are
identified, just as Chiolero and colleagues describe, by using routine
data, which are widely available and accurate in the USA because
they are the basis of payment. Increasingly, these data come directly
from electronic records. Once identified, people are invited to have
their blood sugars tested and if the results are sufficiently high, they
are invited to join a programme of lifestyle change. Is this disease
mongering or common sense?

It seems to me that it cannot be sensible to sit back and wait for
people to present with full-blown diabetes even with complications.
We know that it is seamless progression from unhealthy lifestyles
to diabetes and its complications. Ideally, we should create healthy
environments where people have healthy lifestyles and so are
much less likely to develop diabetes, but when we know that there
are millions of people with prediabetes and that it is possible to stop
or delay progression to diabetes, it is surely sensible (and, evidence
shows, cost-effective) to act.

Conclusion

So, I agree strongly with the request of Chiolero and colleagues that
we use a critical eye on data produced from electronic medical
records, but I also want a critical eye cast on the concept of
overdiagnosis.

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