MEDICO-LEGAL SOCIETY OF NSW INC.

SCIENTIFIC MEETING

WEDNESDAY, 11 NOVEMBER 2015 AT 6.15 P.M.

THE TOPIC: ARE CATASTROPHES IN MENTAL HEALTH FORESEEBLE?

SPEAKERS: DR MATTHEW LARGE
          DR PEGGY DWYER

DR MICHAEL DIAMOND: Good evening members. We are a little late, but as we see, there has been a steady stream of stragglers. As we look and hear the noise and anticipation, I believe it reflects the fact that there is some excitement in the air, because we have a very good program this evening.

Welcome to all of you to our last scientific meeting for the year. We have two excellent speakers whom I will introduce in turn.

The first speaker is Matthew Large. Matthew is an esteemed psychiatric colleague. He is the medical superintendent of mental health at the Prince of Wales Hospital and a conjoint senior lecturer at the University of New South Wales. He has published extensively in significant peer reviewed journals and his main areas of research are to do with homicide, suicide by the mentally ill and the adverse effects of cannabis use. Matthew has been at the forefront of moderating the psychiatric community's enthusiasm for violence and suicide risk assessment, and is an advocate for the recovery model in mental health and patient autonomy.

Recently Matthew was awarded a doctorate of medical science from the University of New South Wales for his work on risk assessment. He is an active expert involved in coroner's matters and in civil claims following suicide. Matthew will address us on the assessment issues of suicide and beyond that and later we will hear from Dr Dwyer from the legal point of view. Please welcome Matthew Large.

DR MATTHEW LARGE: Thank you very much Michael and thank you to the Society for having me. I am going to give a rather numeric talk today. It is a potted version of an invited talk that I gave in Oxford a week or two ago. I call it very broadly "The Suicide of Psychiatric Inpatients" It could have been called a number of other things and the term "risk" could have been included. I just want to orientate you to what it is we are thinking about.

Suicide of psychiatric inpatients is defined as a suicide of a registered inpatient. They constitute up to about five per cent of all suicides. That figure is not firmly established, but two to five per cent of suicides are of people who are current inpatients. About a third of these suicides are on hospital grounds in hospital wards. About another third are of patients who are absent without

leave and about a third are of patients who are on approved leave.

The inpatient setting is an ideal setting to examine risk assessment for a few reasons. First is because the base rate of suicide is quite high, so you can actually do research in the area. Second is we know a lot about inpatients. There are two sorts of uncertainty and risk assessment. There is epistemological uncertainty due to lack of knowledge and aleatory uncertainty due to random effects like rolling a dice. Epistemological uncertainty is minimised in hospital settings. We know a lot about this. Third not all patients need treatment so arguably, the differences between the high risk and low risk inpatients according to treatment, are not blunted by the treatment of high-risk patients.

We expect of ourselves to make decisions about whether to admit patients, what ward to put them in, how often we observe them, what medication to give them, when to allow them leave and when to allow them discharge, all on the basis of risk assessment.

Risk assessment becomes very important in coronial matters. For example a patient, Melanie Rabone was admitted to a hospital in the north of England only a few kilometres from where I was born. She had a history of fairly minor depressive illness. She was in hospital for a few days and was allowed leave. At home on the Friday she seemed to be fairly well, and again on the Saturday she seemed to be fairly well. On the Sunday she told her mother she was going to visit a friend but instead hung herself in Lyme Park, the setting of Mr Darcy's Pemberley in the BBC series of Pride and Prejudice.

Melanie's parents took her case to as many courts as possible, ending up I believe in the European Court of Human Rights. The interesting thing to me about this case is the opinion of the doctors who gave evidence about Melanie. One of them gave evidence that on the day of her death she had a 70 per cent chance of suicide and two others gave evidence that it was 20 per cent and 10 per cent. The courts accepted this, which is incredible. If there was any class of patient that had a 10 per cent chance of suicide on any given day, that class of patient would rapidly cease to exist. It is actually ridiculous and I will talk more about that shortly.

In today's presentation I am going to tell you three things. First that the rate of suicide in psychiatric

patients is astonishingly and frighteningly high; second that psychiatrists do not possess the tools to meaningfully distinguish between high and low risk patients who are inpatients; and third what I believe are the implications of that.

The first part is how common are inpatient suicides? There are two ways of measuring this. The first way is, for a person that you admit, at the time of discharge what is the probability that a death will occur for that patient? The other way is, if you have a bed in a psychiatric hospital, what is the probability that a patient will suicide in that bed during that year? These are the two metrics that I am going to discuss.

In a recently published study (*Acta Psychiatrica Scandinavica* 2014 pp1-11) we looked at all the available literature that might interrogate this question published since 1945. I am not going to go into the methods of the study but it is a well-established process of surveying the literature and putting the results of the literature together in a reliable reproducible way. I am confident that somebody else doing this study but blinded to its findings would produce almost identical results.

The first question was what is the probability of the admitted patient suiciding or in the reverse, how many patients can you expect to admit before you have a suicide or before you have another suicide?

We found that before 1960 about 1 in 700 admissions ended in a suicide. Over the ensuing decades the number of admissions per suicide declined 1 in 550 just prior to the turn of the century. Since then the number of admissions per suicide has gone up again (1 in 1200), although this figure is largely influenced by two very big studies from Denmark and the United Kingdom. It does not necessarily reflect every jurisdiction and in New South Wales the figure is about 1 in 900.

Most humans are very bad at dealing with numbers. For example if you do wing suit base jumps where you put on a funny suit, like a Batman suit, climb up some tall object and jump off, your risk of dying from that jump is about 1 in 2,000. So in the 1990s you were four times more likely to die if you were admitted to a psychiatric hospital than if you were to do a wing suit base jump.

The probability of a suicide in a particular bed was around 70 per 100,000 patient years before 1980. However

since 1980 it has risen to over 600 per 100,000 patient years. The suicide rate in the general population worldwide is between 5 and 15 per 100,000. There are a few countries on either side of that while in Australia it is around 10 or 11. Accordingly the rate in psychiatric hospitals is about 60 times the rate of suicide in the general community. Alarmingly this figure has gone up and is probably best explained by the closure of beds, the shortening of the amount of time we leave people in hospital and the increased mental illness acuity of the patients that we now do admit.

Studies have confirmed that in hospitals with a longer length of stay, the probability of death in a particular bed declines. When plotted on a graph as the natural logarithm of the suicide rate against the natural logarithm of the length of hospital stay the highest rate of suicide was in a small private hospital in Adelaide in the 1990's, and was 3,400 times greater than in an old English psychiatric hospital. That is the first point, that the rate of suicide in psychiatric hospitals is astonishingly and worryingly high and varies hugely.

In a slightly earlier paper (*Acta Psychiatrica Scandinavica* 2011:124 pp18-29)using similar methods I looked at the characteristics of suicide completers and matched survivors in published studies. There are 30 odd studies of this. Big data is available, much bigger than really any other suicide setting you might think of.

The metric that I used was odds ratio, so it is effectively how much more likely this characteristic is in a suicide completed than a suicide survivor. I "crunched" all of this data together using meta-analysis and I found that depressed mood, previous suicide attempt, feelings of guilt or worthlessness, and feelings of hopelessness, were the strongest associations with suicide amongst psychiatric inpatients. Other factors that were also statistically associated with the suicide of psychiatric inpatients included family history of suicide, suicide ideas, schizophrenia, longer admission, involuntary admission and previous admission.

I would highlight that this is a modest odds. The odds of suicide associated with being male are four. The odds of suicide according to having suicidal ideas, at least among in-patients, are two. Using those figures, if you had to play desert island risk assessment, and if you were only allowed one thing to predict suicide, you would choose gender because it is more strongly associated with

suicide and suicide ideas and somewhat more easily assessable.

It was also interesting what was not associated with suicide. For the psychiatrists in the room, we all know that being male, being older, living alone, being unemployed, being violent, having delusions, being a substance user, being physically sick, having psychiatric treatment, being psychotic and hallucinating are all associated with suicide - except they are not. None of these risk factors are significant. The risk factors in which we have been traditionally educated do not work in hospital.

The reasons for that are complicated. One that really struck me, is that people who have substance abuse are less likely to kill themselves in hospital than people who do not have substance use. However when you think about it a little bit more the reason becomes a little bit more obvious. If you come into hospital intoxicated and suicidal, we immediately stop you from drinking and your suicide risk declines. In comparison, where a patient presents with a severe depression or a psychosis, we cannot immediately do anything very much about their suicide risk. This does not mean that substance abuse is not a risk factor for suicide in the general community, it just means that substance users occupy an intermediate position between the general community and patients with major mental illness. However practically everything we have ever been taught about suicide risk factors in the community does not apply to in-patients.

No-one believes that you should do a suicide risk assessment on the basis of one factor and there are now seven or eight studies that have combined individual factors to define a high risk model. These are the studies that have added up various factors to produce a scale or a way of identifying high risk patients. If you do this, you can perhaps identify a group of people who have a risk of suicide that is about 11 times higher than a low risk group according to our meta-analysis. The only problem with this is if you look at how these various studies define their high risk group, the factors that they have used are highly contradictory. In some studies being male was a risk factor and in some studies being unemployed was a risk factor. However in other studies it was the opposite with being female the risk factor, or being employed the risk factor. This is because the studies generally examined a very large number of factors (up to 200) and tended to have only a small number of

suicide victims. Accordingly these studies are highly prone to false positive findings. When you incorporate chance findings into multivariate models you get chance capitalisation and you get these contradictory findings. After all it is not as if these studies all used exactly the same method. The factors that were consistently associated with suicide were few and included depressed mood, a suicide attempt in the past, an admission because of a suicide attempt and staying longer in hospital.

Not long after this study was published 2011, a Danish group published a whole of nation study (Madsen et al. 2012 *J Clin. Psych*.). It is the largest study of in-patient suicide and the best conducted study using very sophisticated statistical analysis. They came up with exactly the same list of significant risk factors as I did by my survey of the literature. I am very confident about these findings because I am a co-author on an upcoming whole of nation study looking at suicide among in-patients in Israel. Again we have identified a very similar list of risk factors

Trine Madson, the author of the Danish study very kindly gave me their data and so I can take you through how this study worked. In Denmark in the 10 years of this study, there were 24,147 admissions of people who could have valid risk factors defined as being at high risk. Thirty four of these ended in a suicide - a suicide rate of one suicide per 710 admissions. This is the equivalent of one suicide for every 19,446 days (53 patient years) with the probability of suicide in a particular bed being 1,846 per 100,000 inpatient years.

When you are involved in a civil case or a coroner's case, often it comes down to what was happening on that particular day as it did in the Rabone case mentioned earlier. But if you think you know the day on which a high risk patient will suicide, that is the same as me saying I thought of a day between the release of Love Me Do and now and you saying, yes, I know that day.

In Denmark during the study period, there were 332,565 low risk admissions and they resulted in the majority of suicides (245). This seems to be like a fractal in suicide research with two thirds of suicides in the community being people who have never had contact with mental health services. Numerically, most suicides occur among low risk patients because low risk patients are more numerous. That worked out at one suicide per 1,357 admissions. This is the equivalent of one suicide every

45,619 patient days (125 patient years), with the probability of suicide in a particular bed being 800 per 100,000 inpatient years. The suicide risk of low risk patients was 80 times that of the general community. Yet the equivalent data calculation of the suicide rate per day would have me thinking of a day since the Federation tree was planted and somebody in the room saying I know that day you are thinking of.

Hospitals vary hugely in their suicide rates. We do not know how many floors there are below in drawing of the outside of this building with two men outside on window ledges, one a floor higher than the other, but if you think of this building as a hospital, it is like Manhattan, with low buildings and high buildings. In fact, the variation in them is much bigger than the variation in the height of the buildings in Manhattan. There are no 3,000 storey buildings in Manhattan although there are some one storey buildings. The difference between low and high risk patients is not particularly great. The low risk patients still have suicide rates that are many tens higher than the suicide rate in the general community.

The real question to my mind, working as a doctor in a hospital, is not whether suicide is foreseeable or whether I can predict suicide at an individual or aggregate level. I accept that we can identify some characteristics that place patients in groups that mean they are at high risk of suicide, I also accept that membership of that group does tell you something about the individual. What I worry about is if you have a group of people who you have defined as being at high risk, if you are going to do anything on that basis, then it needs to be effective and benign so as not to affect the overwhelming number of false positives. Even among high risk patients, only one in 500 or 600 will suicide. For example in the Danish study where one in 700 suicided, you do not want to expose 699 people who are not going to suicide to unnecessary expensive and harsh control measures. However if you had a benign and effective intervention, should it not be given to the low risk patients as well? After all these patients are many tens of times more likely to kill themselves than the general community? We classify things for a human purpose. If we are making a bonfire, we classify wood very differently to if we are making violins. If we are to classify people according to risk, we have to have a good reason for doing that. If we do not have a good reason for doing it, we should not be doing it.

I come now to my final point. I do not think that the variation in the rate of suicide between hospitals can be explained by patient factors. The general assumption is that the high rate of suicide in psychiatric hospitals is a result of us gathering and selecting the people who are at risk of suicide and putting them together in the same place. Implicit in that assumption is an acknowledgment that we are not able to save all of them. That is the generally accepted view. However I have a different view.

Psychiatric hospitals have become very adverse places. They are noisy, they are dangerous, they isolate people from their social settings, and people become stigmatised by becoming a person who has been in a psychiatric hospital. We all know that trauma and stigma are associated with suicide in the general community. To my mind, I cannot believe that all suicides are due to selection and failure to prevent. It is my view that we cause suicides and that some hospitals cause more suicides than others.

I am going to wind up now. I told you at the beginning what I was going to say, I have said it and now I am going to say it again.

It is difficult to comprehend how high the rate of suicide in psychiatric hospitals is. It is much, much higher than the general community. These are not isolated events. When I first started looking at this area I thought this incidence so dramatic and so unusual that there must have been something wrong with the figures. In fact, there is a very high rate of suicide in all psychiatric hospitals. However the rates in different hospitals do vary dramatically.

The tools we have used for determining who will and will not suicide in psychiatric hospitals are incorrect. On the basis of the information we have, risk assessment is a way of discriminating between groups of high and low risk people. It is so unpromising to me that I am now of the view we should try to adopt a universal standard of care with respect to psychiatric patients and risk. It reminds me of when I was a junior doctor and there was a period in the 1990s when we only wore gloves to protect ourselves from HIV when we were taking blood from heroin addicts, homosexuals, haemophiliacs and people from Haiti. We did a risk assessment of whether we would get HIV from our patients and that was a ridiculous thing to do. We put little stickers on patients' notes indicating

that they were bio-hazardous. A little while later it dawned on someone that we should just adopt universal precautions and that is what I think we should do in psychiatric hospitals.

This also reminds me of another experience I had when I was young. When I left school I was not sufficiently mature to study medicine, even my dad told me so! So I got on my bike and rode up to Royal North Shore Hospital and became enrolled as a general nurse. At that time North Shore was the last hospital in New South Wales to take male nurses because of the assumption that we were all homosexual (in reality only about half of us were). We were not allowed into a lot of the wards because of that assumption. One of the wards we were allowed to work in was the psychiatry ward, and another was the cardiac ward. There was a belief at that time that if you had had a heart attack you should stay in bed for a week, and if you had had a big heart attack, you should stay in bed for two weeks. We quite literally pushed people back into bed when they got out of bed. There had never been a trial of whether you should leave people in bed or whether you should get them to walk around. When those trials were done, it was then discovered that you have many more survivors if you let people out of bed early.

The situation that we have at the moment in psychiatry is we routinely admit patients to hospital when they are suicidal. I put it to you that there is no credible evidence to support that admitting people to hospital for suicidal ideation or suicide attempts prevents suicide. It has never been studied. Behind closed doors in the National Institute of Mental Health (NIMH) there is a big debate going on about this at the moment. I tried to talk about it at a recent American suicide prevention conference but I was basically told "to pull my head in" because this discussion was going to happen behind closed doors until the trial was announced. However the NIMH are going to do a trial with a hospital admission arm and a community treatment arm. My prediction, which I have made publicly in several settings, is this trial will be aborted because of an excessive number of suicides in the hospital admission arm.

I will leave it there.

DR MICHAEL DIAMOND: Thank you very much. In the style of a true drama, we are left with the question hanging and we have our next speaker Dr Peggy Dwyer.