Biomarker-guided treatment stratification algorithms are also needed for patients with established illness. Compared with clinical high-risk populations, individuals with established psychotic disorders are much more readily available to participate in treatment studies; as a result, we have identified medications, social skills, and cognitive training interventions with varying degrees of efficacy in these patients.[12,13] In fact, studies of therapeutics for patients with chronic illness might both address the need for improved therapeutics for those already with these disorders, and provide an opportunity to elaborate crucial brain biomarker–treatment associations that can bend the curve on the individual outcomes and societal effect of psychosis.

In summary, Kantrowitz and colleagues[3] show that early intervention in the disabling symptoms of psychotic illness is possible, though not necessarily easy. Further studies targeting persistent negative symptoms and cognitive dysfunction are warranted not only in the prodrome but also in patients with established illness. Ideally, increased use of both neurophysiological and biochemical biomarkers might help either larger-scale or higher-yield clinical trials for transformative therapeutics for psychosis.

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Prevention of the psychological consequences of trauma

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A traumatic event is when an individual experiences, witnesses, or is confronted with, life endangerment, death, serious injury, or threat to self or close others. The 2007 Adult Psychiatric Morbidity Survey reports that 33% of adults living in England have experienced a traumatic event in adulthood.[1] Some traumatic events can have a major effect on physical health resulting in disability and impairment, whereas for some, trauma can have a psychological effect resulting in acute stress disorder (ASD) and post-traumatic stress disorder (PTSD). Data from the 2007 Adult Psychiatric Morbidity Survey showed 3% of adults screened positive for current PTSD, rising to 9% among those who reported experiencing a traumatic event.[1] ASD has been shown to vary from 2% to 21% depending on the nature and severity of the trauma.[2,3] ASD can precede PTSD, a disabling condition which affects not only the individual with the disorder but also their family and close friends. So, what can be done to help?

There are National Institute for Health and Clinical Excellence guidelines on the treatment of PTSD and ASD that outline the recommended forms

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of treatment but these are usually for those with established difficulties.[4] The guidelines remind us that "a number of sufferers with PTSD may recover with no or limited interventions. However, without effective treatment, many people may develop chronic problems over many years. The severity of the initial traumatic response is a reasonable indicator of the need for early intervention, and treatment should not be withheld in such circumstances."[4] So, could early intervention prevent individuals developing psychological problems?

Sijbrandij and colleagues[5] have done a systematic review and meta-analysis to examine the effectiveness of pharmacotherapies given within the first month after a trauma to prevent PTSD or ASD. A meta-analysis comprises statistical methods for contrasting and combining results from different studies in the hope of identifying patterns among study results, sources of disagreement among those results, or other interesting relations that might come to light in the context of many studies.[6] Sijbrandij and colleagues[5] have used a standardised approach to identify the studies, extract the relevant data, and do the analysis. They have also explored levels of heterogeneity across the studies, aiding the interpretation of the resultant effect sizes.

Sijbrandij and colleagues[5] identified 15 studies, which overall included 1765 individuals. These studies were of low methodological quality and included patients who had experienced a range of traumas (from combat injury to cardiac surgery). The main pharmacotherapies examined were hydrocortisone and β blockers. Overall, pharmacotherapy was effective at preventing PTSD and ASD but when restricted to those studies that were randomised controlled trials, no statistically significant effect was apparent. Looking at β blockers and hydrocortisone separately showed that hydrocortisone reduced the risk of developing PTSD.

However, due to the small number of studies included, only a few exploratory factors could be examined. As research in this field develops it will be relevant to explore the effect of type of trauma, the dosage of medication, and the role of previous trauma (especially childhood traumas) that could not be examined here. Further evidence is emerging about the role of post-traumatic growth (ie, positive psychological change reported as a result of challenging experiences)[7]—how will the introduction of medication to prevent PTSD and ASD affect the development of post-traumatic growth?

Sijbrandij and colleagues[5] found no firm evidence for the efficacy of early pharmacotherapies in the prevention of PTSD or ASD. However, the studies included in the meta-analysis were small and of limited methodological quality. It will be interesting to revisit this when more individual studies have been done, to explore the cost-effectiveness of this approach and to investigate the acceptability among trauma survivors of taking medication. If it is possible to prevent the development of PTSD and ASD, this will inevitably improve the lives both of those exposed to trauma and their families,[8] and, hopefully, will have a positive effect on the cost of care for trauma exposed individuals.

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Substance use disorders and avoidable mortality after prison

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Worldwide, more than 30 million people spend time in prison every year.[1] The USA incarcerates 25% of these people and one in 31 Americans is currently under correctional control, either in jail, prison, or on probation or parole.[2] Most prisoners will eventually be released, and the 2 weeks after release have been shown to be associated with a substantial increase in mortality, especially from overdose.[3] Substance use disorders are highly prevalent among incarcerated populations, with more than half of prisoners in some countries being imprisoned for drug-related convictions.[4] In the USA, 85% of people in prisons or jails are substance involved, with 1·5 million individuals meeting DSM criteria for a substance use disorder and an additional 458 000 either with a history of substance use, under the influence at the time of arrest, or convicted of a crime committed to obtain money to buy drugs.[5]

Addiction is a treatable disease and decades of scientific evidence support the efficacy of treatment to improve clinical outcomes, save lives, and reduce societal costs. Treatment for opioid use disorder during incarceration with agonists such as buprenorphine or methadone has been shown to reduce recidivism, improve treatment retention, reduce illicit drug use, and decrease criminal activity.[6,7] Buprenorphine has also been shown to decrease the risk of overdose death by more than 50%.[8] However, despite the overwhelming evidence, treatment remains variable between correctional facilities and few prisoners receive these life-saving drugs.[9]

In *The Lancet Psychiatry*, Zheng Chang and colleagues[10] examined mortality in all people released from prison in Sweden between Jan 1, 2000, and Dec 31, 2009. In this sample of 47 326 individuals and 238 457 person-years of follow-up, the researchers reported that substance use (both alcohol and illicit drug use) was related to a substantial proportion of post-release mortality, even when controlling for other factors using imprisoned siblings as controls. The association between mental illness and post-release mortality disappeared when substance use was controlled for. This well designed study of an entire country offers important and concerning new data on the high risk of death for individuals with substance use disorder who are incarcerated. The results of the study also showed that the period of risk of increased mortality after release from prison is much longer—months to years—than the few weeks previously reported,[3] an important finding that is probably true in most places. These findings are even more alarming when considering the magnitude of risk for a country such as the USA, which has a much higher incarceration rate and far more drug-related convictions than does Sweden.

Access to effective treatments for addiction, particularly pharmacotherapy, is the single greatest intervention that can reduce the death toll from overdose.[11] The withholding of evidence-based treatment for prisoners is arguably unethical and certainly unwise. In the USA, correctional facilities are mandated by the Supreme Court to provide medical care that meets the community standard.[12] And yet, within state prisons people with drug use disorders largely go without care: of these people, only 0·8% receive detoxification services, 0·3% receive maintenance pharmacotherapy, 6·5% receive counselling by a professional, and 9·5% receive treatment in a residential facility.[13] Even those on treatment in the community are systematically forced off when incarcerated, with detrimental consequences.[14] The absence of care in this deeply