

Closing the medical mortality gap in patients with major psychiatric conditions: options for collaboration.

Abstract

This article discusses options on how to close the mortality gap between the general population and people with major psychiatric conditions such as psychosis, autism, learning disability and dementia. Most of the mortality (around 85%) involves physical disease, with most deaths occurring in hospital or in care homes, consequently of relevance to all doctors.

Practicalities of organising physical health monitoring clinics are discussed, based on experience in Whitby (a rural area); compared with Sunderland (an urban conurbation). Potential national initiatives are summarised including options for smoking cessation among psychiatric patients, sugar restriction, nutritional supplementation and vaccination coverage. Furthermore, the potential of a NHS smart card held by patients for registering with a clinic (similar to registering with a dentist) is discussed.

Why the medical mortality gap in psychiatric patients is relevant to all doctors?

The excess mortality in people with severe mental illness has been noted since 1928; a study in New York State showing mortality of psychiatric patients with schizophrenia or bipolar disorder being doubles that of the general population (1). This has been replicated in the UK recently (2) showing a marginal reduction of Schizophrenia and Bipolar Disorder mortality, but showing a widening gap with a matched general population cohort followed up between 2000 – 2014. Furthermore, a study involving Denmark, Finland and Sweden published in 1999, found a reduced life span of 20 years in men, 15 years in women (3). Similar findings have been noted amongst people with learning disability (4), Autistic Spectrum Disorder (5) and Dementia (6). The epidemiological evidence suggests that death due to physical causes occur in psychiatric patients between 65 and 84 (7), typically in acute hospitals or in care homes.

Research in to the use of services shows that psychiatric patients with physical co-morbidity spend between 3-7 more days in acute hospital. The pattern of access to acute services is also different; with 3 times greater use of Accident and Emergency departments, and 5 times unplanned admissions, alongside reduced planned care appointments, both in primary care and hospital outpatient departments (8). This pattern of use appears to be more prevalent in areas of deprivation.

On causes of mortality among people with major psychiatric conditions, a retrospective study in Australia (9) subsequently confirmed by findings in the United Kingdom (UK) in 2011 (10), showed that suicide only accounted for 14% of the excess mortality. The other causes were cardiovascular disease (30%) and cancer (13%). The remaining proportion (40%) appears to be due to community acquired pneumonia among people receiving second

generation (atypical) antipsychotics (11), especially elderly residents in care homes, typically suffering from dementia.

On older people with dementia with 'challenging behaviour' there is continuing evidence of inappropriate prescribing of atypical antipsychotics (12), with non-toxic measures including environmental change, relief of pain and constipation ignored. Furthermore, often there is inadequate discussion with carers of harmful effects (such as stroke and diabetes). This concern was expressed by England's Health and Social care watchdog, the Care Quality Commission (CQC) following their 2 year inspections of all 56 mental health hospital services (13). The other concerns were,

- Inadequate joined up care with primary and acute services;
- Poor physical health care of psychiatric patients;
- Inadequate collaboration between patients, carers and clinicians on treatment plans
- Limited attempts to close the mortality gap.

The current NHS England quality and safety improvement strategy for mental health services, the 5 year forward view (14), has targeted closing the mortality gap as a key target to be delivered by 2021, involving 5 components; with the final point being the preferred direction of travel.

- Increased smoking cessation initiatives in the community;
- Mental health patients to be supported to access screening and smoking reduction;
- Mental health wards being entirely smoke free by 2018;
- Enhanced primary care services with secondary care input to meet physical and mental health needs of the population, including an accountable medical practitioner per patient

Challenges in physical healthcare monitoring

1. The main problem, as described by CQC, appears to be poor communication with primary care on what is expected as physical monitoring following discharge or as part of shared care. This is complicated by a majority of Primary Care practices (essentially small businesses) complaining of being 'lumbered' financially with monitoring and prescribing medication initiated in secondary care without resources or training (15).
2. Furthermore, as mentioned above, psychiatric patients with physical co-morbidities are more likely to have unplanned admissions, incurring changes of psychotropics without consultation with the main prescriber. This pattern adds to intrinsic problems of communication existing between primary and secondary care (for example incompatible electronic records).
3. An associated problem is poor uptake by psychiatric patients of primary care physical monitoring (16). This could be due to patients perceiving that psychiatry is the single point of access when being prescribed psychotropic medication. Also, the need for

physical health monitoring might not have been explained, including risks of non-participation. In addition, perceived stigma probably plays a part; patients being embarrassed of being 'told off' in primary care for being obese and continuing to smoke. Carer's involvement in physical health monitoring is often not emphasised, due to issues of confidentiality (17) and non-disclosure of risks.

4. The process of 'trickle down' funding has been repeatedly shown to be inefficient, with significant amounts of money lost during its progress down to the clinical coalface due to overheads and competing funding gaps. Furthermore, the QOF (Quality Outcome Framework) funding given to primary care to monitor patients on psychotropics is about 30% compared to QOF funding to monitor Diabetes for example, hence not seen as worth pursuing by primary care business managers: this despite the rate of Insulin resistance being higher in patients receiving antipsychotics around 15% compared to the general population of 2-5% (18). Increasingly, secondary care is provided financial relief in terms of CQUIN (Committee for Quality and Innovation) funding to provide physical health monitoring of patients on psychotropics; clearly duplication of effort. Currently there is limited willingness for CQUIN and QOF budget holders to agree on pooling budgets, as there is no national directive to do so.
5. Diagnostic 'overshadowing' is increasingly recognised (19); with doctors under-recognising symptoms of physical disorder, and ascribing 'somatic' symptoms as part of the person's psychiatric condition. Furthermore, there is evidence that physical examinations and routine investigations occur less often in psychiatric patients (20). The National Early Warning Score (NEWS) is recommended in secondary care for patient monitoring (21), but rarely used in the community, for example in care homes. This relative lack of objective measures can increase the likelihood of diagnostic overshadowing. Recent examples of diagnostic overshadowing include,
 - 60 year old lady on antipsychotics, with co-morbid alcohol use, complaining of intermittent laser beams affecting her body. During an exacerbation, physical examination noted a vasculitis rash complicated by scabies. Treatment for scabies resolved complaints.
 - 80 year old lady with dementia was on antipsychotics due to her challenging behaviour and complaints men were 'interfering' with her. On examination, she described the men 'pulling her insides out'. Further examination detected a vaginal prolapse which was successfully treated with general improvement and discontinuation of the antipsychotic.
 - 55 year old lady treated for 'retarded' depression with additions to current serotonergic anti-depressant, prior to considering ECT. Found to have hyponatraemia (drug effect).

Solution A - Practice based quality improvement (The Whitby Project, 2003-5)

This quality improvement project was initiated by the manager of the community mental health team (CMHT) in Whitby who worked with the practice managers of 6 surgeries covering Whitby town and North York Moors (population 26,000). This was part of a whole

system transformation plan (22). The problems identified were the logistics accommodating the 15 patients attending the CMHT for their depot antipsychotic; alongside the difficulty the 6 practices faced monitoring patients on antipsychotics and mood stabilisers to achieve QOF thresholds.

The methodology used was a joint CPN / Practice Nurse clinic rotating between the 6 practices (with the same CPN), jointly monitoring all patients on anti-psychotics, including the 15 patients on depot medication, with all depots administered at the practices. Bloods, recordings of weight and blood pressure as well as the use of the Lunsers scale for extrapyramidal features were agreed beforehand.

It was envisaged for the practice nurses and CPN would learn from each other, so that the CPN could pull out in 18 months' time, when Practice Nurses were confident of checking for side effects and noticing evidence of mental deterioration (for example self-neglect, insomnia, non-concordance). Each practice nominated a GP with mental health expertise, with prompt access to the Consultant if needed.

The main outcome after 18 months was that of the 15 depot patients, 1 returned to secondary care, with the remainder followed up by the practice nurses. The returnee was placed on Clozapine due to resistant psychosis, and moved to shared-care. As a further agreement, the practices also agreed to carry out monthly blood monitoring of stabilised Clozapine patients (8 in all). As expected there were new diagnoses of hypertension and glucose intolerance among screened patients. The CPN was thereafter seconded to apply her expertise of training practice nurses in other areas of the local mental health services.

Solution B – City wide quality improvement; via an Accountable Care Provider

Consistent with the NHS England 5 year Forward View suggestion of 'enhanced primary care services' (see above), Sunderland Clinical Commissioning Group (CCG) is currently developing an Accountable (Integrated) Care Provider covering its total population of 290,000. The Acute and Mental Health Trusts are partners in the project alongside the local authority. Similar arrangements are underway in the West Yorkshire and Midlands.

The main objective is to provide patients with chronic disease (especially those with mental health conditions) a local 'one stop shop' for disease monitoring, prescribing and healthy living options. The secondary objective is to reduce the burden on both hospital and primary care services, including cost pressures.

The provider will manage 5 hubs across the city, co-terminus with 'walk in' primary care centres, and staffed by CPNs, chronic disease specialist nurses, pharmacists and GPs with a special interest in managing mental and physical health as a whole. One of the insights gained by Early Intervention in Psychosis (EIP) teams has been the value of activity coordinators being front loaded to enhance patient engagement (23). These workers have access to Local Authority funding for activity sessions (cycling, football, theatre) and to

sympathetic employers to arrange voluntary or paid employment. Each clinic will routinely have a non-medical prescriber (a pharmacist) to ensure fidelity with NICE guidance on use of psychotropic medications. It is envisaged that the hubs would be backed by consultant skype input; for 'trouble shooting' to avoid unplanned secondary care activity.

The alternative service provision for physical care monitoring is that adopted by the city of Bradford (24), with 5 local clinics co-terminus with CMHT's working on the basis of a physical health monitoring template, which is shared with primary Care, and available on both the mental health and primary care electronic records. Outcome audit of this service at 2 years (since commencement in 2009), suggests 80-100% fidelity with template objectives including smoking / weight advice and QRisk2 calculation and discussion. However, prescribing is not included in this clinic.

Solution C - National Quality Improvement – a NHS smart-card

This idea, first mooted in 2005 (25), involved a patient / carer held smart-card containing an up to date data set and an allocated e-budget, to be used at a multi-disciplinary poly-clinic to reduce demands on secondary care due to chronic disease, including mental health conditions. A NHS smart-card would utilise CHIP & PIN safeguards, with a limited 'back door' access to be used in emergencies by paramedics and acute services. The data set would include a current problem list, medications and sensitivities, updated at each NHS consultation, using cloud technology back up in case the card is lost. Additionally, this system would also help transfers of care between hospital and community, without need for letters / faxes.

The personal health budget would be allocated for physical health monitoring and relevant prescribing. It would allow users to register with any NHS approved clinic providing the relevant service, a process similar to registering with an NHS dentist. Overall, a NHS card would bypass the problems caused by disparate IT systems and provides users real choice in terms of access (telephone booking, evening appointments) and quality (one stop shop including dietetics, exercise and activity / work options).

Solution D – National Policy changes

- **Changes to funding streams**

Pooling mental health funding via QOF and CQUIN to a single budget is essential, to fund multidisciplinary clinics for joined-up mental and physical health monitoring. This fund will also pay an enhanced capitation fee to a named doctor for monitoring and for prescribing NICE recommended psychotropic medication via algorithms. It is likely that group practices will be the main bidders for these clinics, as they have ready access to a registered patient population. Furthermore, a universally agreed monitoring template, as designed in Bradford is helpful.

- **Curtailling smoking**

On smoking harm reduction and potential cessation, legislation in 2007 banning smoking in public places including shops, pubs and hospitals has been effective in terms of reduced cardiovascular morbidity and mortality, consistent with reduced passive smoking and reduced use (26). Furthermore, there is evidence of reduced smoking rates amongst e-cigarette users (27). The implication is to encourage psychiatric patients to move to e-cigarette use as a means of stopping, an alternative to using Nicotine patches whilst smoking.

- **Limiting access to sugar**

The main problem for the population as a whole is the excess mortality associated with excessive sugar use, especially in terms of sugary drinks (28) via cardiovascular disease, insulin intolerance and hypertension. High sugar drinks include fruit concentrates and most alcoholic drinks. A limited form of sugar tax (excluding fruit drinks and alcoholic beverages) is due to commence in April 2018 in England, following Scotland's lead in 2016. Coupled with this, local initiatives to limit easy access to sugary drinks in public spaces, hospitals and transport hubs could be considered, although commercial pressures against such a move are significant on legislators. Local authorities can impose extra business taxes on shops and wholesale agents selling sugary products, with income diverted to fund health education and activity programmes locally.

- **Nutritional supplementation and vaccination coverage**

Over the last decade, there has been increasing awareness of widespread deficiency in the general population of bodily reserves of Magnesium and Vitamin D. It is estimated that 40% of adults lack Magnesium (29), with higher rates in elderly due to poor diet, calcium channel blockers and reduced absorption. A recent meta-analysis concluded that there was a significant inverse correlation between dietary magnesium intake and the risk of stroke, heart failure, diabetes and all-cause mortality (30); a finding consistent with previous findings among populations exposed to high Magnesium levels in water. This finding is relevant to people with mental illness, suggesting routine Magnesium supplementation to protect from acute cardiovascular events.

Furthermore, there is increasing public health interest in ameliorating effects of Vitamin D3 supplementation on seasonal influenza (and associated community acquired pneumonia) (31). This is based on a strong association between reduced levels of Vitamin D and winter influenza in Norway (32). Routine Vitamin D3 supplementation of older psychiatric patients in care homes could be an effective public health measure, potentially as effective as the

annual flu vaccination and serving as a back-up if the vaccination is off target for pathogens. Considering the strong association between long term atypical antipsychotic use and community acquired pneumonia, would suggest routine use of vaccination (both the flu and pneumococcal types) in this population.

Conclusions

1. It is apparent that a 'top down' approach such as the Chief Medical Officer's report in 2013 (33), the combined Royal Colleges report in 2016 (10), a further Kings College report on the topic also in 2016 (34) and indeed the NHS Five Year Forward View (14) has had limited traction among coal face doctors to focus on reducing the mortality gap as evidenced by the CQC objective assessments in 2017 (13). What appears necessary is local ('bottom up') quality improvement projects (such as the Whitby and Bradford initiatives) to be published and discussed, leading to replication in different localities with appropriate modifications.
2. It appears that the mortality gap is not diagnostic specific, but associated with specific medications, such as 'atypical' antipsychotic drugs, alongside smoking, sugar use and lack of exercise; the usual 'toxic triad'. This finding should guide monitoring and preventative strategies (including reducing sugar availability, smoking restriction and vaccine coverage), as well as evidence based nutritional supplementation such as magnesium and Vitamin D3. A specific case for Flu and Pneumococcal vaccination for all long term atypical antipsychotic users over 60 years of age needs consideration.
3. On service development, there needs to be changes to service configuration and funding streams in order to narrow the mortality gap. Furthermore, staff looking after people with major mental health conditions (including doctors in acute hospitals and in primary care) need to be exposed to scenario based training to be aware of diagnostic overshadowing preventing prompt recognition of physical disease in psychiatric patients.
4. Management of physical health of patients under secondary mental health care should be the main role of psychiatric doctors, as suicide remediation, psychotropic prescribing (via algorithms) and mental health act management could be performed adequately by senior non-medical mental health staff, such as pharmacists and psychologists. Furthermore, psychiatric doctors have a role in remaining physically fit and healthy, thereby being role models for their patients and for other psychiatric staff so that health education of patients becomes more credible. Perhaps psychiatrists should accompany their patients to the gym, to 5-a-side football or to the swimming pool!
5. Overall, there needs to be a change of heart by all healthcare staff, towards seeing people with mental health conditions as deserving of high quality health care and nutrition provided to the general population. The attitude of 'life unworthy of life' fostered 100 years ago (35), should be replaced so that people with major psychiatric conditions can live a long and purposeful life, with valued input to family and work.

References

1. Druss, B., Bornman, T. Improving health and healthcare for persons with severe mental illness. JAMA 2010, Vol 303(19): 1972-3
2. Hayes, J.F., Marston, L., Walters, K., et.al. Mortality gap for people with bipolar disorder and schizophrenia; a UK based cohort study 2000-2014. British Journal of Psychiatry. 2017; Vol 211 (3): 175-181
3. Wahlbeck, K., Westman, J., Nordentoff, M. et.al. Outcome of Nordic mental health system: life expectancy of patients with mental disorder. British Journal of Psychiatry. Nov. 2011, Vol 199(6): 453-458
4. Kwok, H., Cheung, P.W.H. Co-morbidity of psychiatric disorder and medical illness in people with intellectual disability. Current Opinion in Psychiatry 2007, Vol 20: 443-449
5. Hirvikoski, T., Mittendorfer-Rutz, E., Bowman, M. et al. Premature mortality in Autistic Spectrum Disorder. British Journal of Psychiatry March 2016, Vol 208(3): 232-238
6. Hicks, K.L., Black, B.S., Rabins, P.V. Predictors of mortality in nursing home residents with advanced dementia. Amer. J. Alzheimer's dis. Other Dementias. Aug. 2010 Vol 25(5): 439-445
7. Hoang, U., Stewart, R., Goldacre, M.J. Mortality after hospital discharge for people with schizophrenia or bipolar disorder; retrospective study of linked English hospital episode statistics, 1999 – 2006. BMJ. 2011; Vol 343; d5422
8. Dorning, H., Davies, A., Blunt, I. People with mental ill health and hospital use 2013/14. [www.qualitywatch.org.uk>content>su...](http://www.qualitywatch.org.uk/content/su...)
9. Morbidity and Mortality in people with serious mental illness. National association of state Mental Health programme Directors (NASMHPD) Medical Directors Council; 2006
10. Working group for improving the Physical Health of people with Severe Mental Illness: essential actions (OP100). <http://www.rcpsych.ac.uk/publications/collegereports.aspx>
11. Trifiro, G. Antipsychotic drug use and community acquired pneumonia. Curr. Infect. Dis. Rep. June 2011, Vol 13(3): 262-268
12. Barnes, T., Bhatti, S., Lemmey, D.S. et.al. Prescribing antipsychotic medication for people with dementia. POMH re-audit of topic 11b, 2013 <https://www.covwarkpt.nhs.uk/download.cfm?doc=docm93jjm4n2393.p...>
13. CQC: The state of care in mental health services 2014 – 2017 www.cqc.org.uk/...report/state-care-mental
14. The Five Year Forward View for Mental Health –NHS [https://england.nhs.uk>wp-content>...>2014](https://england.nhs.uk/wp-content/...>2014)
15. Jones, M.I., Greenfield, S.M., Stevenson, F.A. et.al. General Practitioners and hospital initiated prescribing. The European journal of general Practice. 2009; Vol 7(1): 18 - 22
16. Werneke, U., Horn, O., Maryon-Davis, A. et.al. Uptake of screening for Breast cancer in patients with mental health problems. J. Epidemiol. Community Health. July 2006, Vol 60(7): 600-605
17. Happell, B., Wilson, K., Platania-Phung, C, Stanton, R. Physical health and mental illness: listening to the voice of carers. Journal of Mental Health. 2017, Vol 26(2): 127-133
18. Taylor, D., Young, C. Mohamed, R. et.al. Undiagnosed impaired fasting glucose and diabetes amongst in patients receiving antipsychotic drugs. J. Psychopharmacology 2005, Vol 19(2): 162-186

19. Jones, S., Howard, L., Thornicroft, G. Diagnostic overshadowing: worse physical healthcare for people with mental illness. *Acta Psychiatrica Scandinavica*. 2008. Vol 118(3): 169-171
20. De Hert, M., Corell, C.U., Bobes, J. et.al. Physical illness in patients with severe mental disorders; barriers to care, monitoring and treatment guidelines, plus recommendations to the system and individual levels. *World Psychiatry*. Vol 10: 138-151
21. National early warning score (NEWS) – RCP London
<https://www.rcplondon.ac.uk/file/32/download?token=5NwjEyTq>
22. De Silva, P.N. new ways of working with primary care; proactive CMHT or Polyclinic? *Progress in Neurology and Psychiatry*. 2009, Vol 13(1)
23. Marshall, M., Rathbone, J. Early intervention in psychosis. *Cochrane database of systematic reviews*. 4: CD004718.pub2. [doi:10.1002/14651858.CD004718.pub3](https://doi.org/10.1002/14651858.CD004718.pub3)
24. Dale, K. Improving physical health for people with severe mental illness (SMI). 2017. positivepracticemhdirectory.org/...people-serious-mental-illness-smi
25. de Silva, P.N. Time for a NHS smart card? *British Medical Journal*. 2008, Vol 336: 9
26. Frazer, K., Calliman, J.E., McHugh, J. et.al. Does legislation to ban smoking reduced exposure to secondhand smoke and smoking behavior? *Cochrane Tobacco Addiction Group* 2016.
www.cochrane.org/CD005992
28. Yang, Q., Zhang, Z., Gregg, E.W. et.al. Added sugar intake and cardiovascular disease mortality among US adults. *JAMA Intern. Med.* 2014; Vol 174(4): 516-524
29. Whang R, Ryder KW. Frequency of hypomagnesemia and hypomagnesemia. Requested vs routine. *JAMA*. 1990; 263(22):3063–4.
30. Fang, x., Wang, K., Han, D. et.al. Dietary Magnesium intake and the risk of cardiovascular disease, type II diabetes and all-cause mortality; a dose response meta-analysis of prospective cohort studies. *BMC Medicine* 2016, 14:210
31. Urashima, M., Segawa, T., Okazaki, M. et.al. Randomized trial of Vitamin D supplementation to prevent seasonal influenza A in schoolchildren. *Am. J. Clin. Nutr.* 2010 May, Vol 91(5)1255 – 1260
32. Moan j., Dahlback, A., Ma, L.W. influenza, solar radiation and Vitamin D. *Dermatoendocrinol.* 2009; Vol 1(6): 307-309
33. Davies, S. chief Medical Officer annual report 2013: public mental health.
<https://www.gov.uk/government/publications/chief-medical-officer...>
34. Naylor, C., Das, P., Ross, S. et.al. bringing together physical and mental health: a new frontier for integrated care. 2016. <https://www.kingsfund.org.uk/publications/physical-and-mental-health>
35. Strous, R.D. Psychiatry during the Nazi era: ethical lessons for the modern professional. *Annals of General Psychiatry*. 2007, 6(1): 8-10