Use of appropriate technology to improve mental health service delivery

ABSTRACT

This article reviews currently available appropriate technologies which have been used in mental health, in order to reduce confusion and delay. Confusion (for example when and where to refer) can lead to error and waste. Similarly delay impacts quality and accessibility of the whole range of mental health services. As most secondary care mental health services use electronic patient records, it is arguably easier to apply technology in this speciality. However, consideration needs to be given to confidentiality and data security. Doctors of all specialities will be exposed to 'new' technologies over the next decade, and need to be aware of the direction of travel and its implications.

The term appropriate technology (Hazeltine and Bull, 1999) is defined as use of readily available technology (including electronic devices) to transform service delivery to patients, while providing value for money. There is increasing interest in using technology to improve service delivery in the NHS in Britain, including delivery of mental health services.

Mental health service delivery via the NHS has a well-deserved reputation internationally (McDaid et al, 2017) for being free at the point of access while offering a range of treatments covering all ages and most diagnostic categories. In particular, prompt access to psychological therapies, early intervention in psychosis and 24-hour access to liaison psychiatry in acute hospitals have been seen as innovative services.

Nevertheless, referrers remain confused about how to navigate the mental health system when referring a patient, including the work up required to make a referral acceptable (Cunningham, 2009). This is partly because mental health services are divided by geographical sector, age and diagnostic category. A further area of confusion is lack of referrer awareness about the most cost-effective treatments. For example a study demonstrated that behavioural activation practiced by relatively untrained staff was equally beneficial to cognitive behavioural therapy provided by highly skilled staff, but 20% cheaper (Richards et al, 2016). Despite this, behavioural activation has failed to gain traction among referrers and providers, unlike cognitive behavioural therapy delivered by improved access to psychological therapy.

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Delay is also a major problem when discharging older people with dementia from general hospital beds (National Audit Office, 2016), as a result of delayed handover of requirements to social services, coupled with non-availability of intermediate care beds and care at home packages. Staff trained in mental health are effective in coordinating discharge of dementia patients, but most bed management discharge services rarely include mental health staff. Failure to attend outpatient clinic appointments (typically 20–34%) also contributes to delay in terms of time to see a specialist (Mitchell and Selmes, 2007).

Of late, the Department of Health and the recently appointed Secretary of State have prioritised the need to use available technology to improve quality, safety and accessibility of NHS services in general, and mental health in particular. As most secondary care mental health services are using electronic patient records, it is thought that it would be easier to incorporate appropriate technology in this speciality in particular.

Systems to avoid confusion, error and waste

Accountable or integrated care providers

As part of the NHS England Five Year Forward View, the accountable or integrated care provider model (Ham, 2018) has been proposed to improve care provided to people with chronic disease (including mental health conditions) which need physical health monitoring and stepped treatment via pre-set algorithms. Preliminary work on this system is being carried out in the West Midlands. Providing health education (like smoking cessation) is available, alongside physical health monitoring and repeat prescriptions from one site, outwith outpatient clinics or GP surgeries. It is hoped that this service (typically based at a number of hubs in a city) would avoid communication breakdown and unplanned hospital admissions. Conditions which could be managed this way include mood disorders, psychosis and neurodegenerative conditions. Clearly the same site can be used for different clinics, staffed by pharmacists with prescribing responsibility, mental health nurses and GPs with a special interest. Virtual access to benefit, housing and voluntary agencies would be possible, as well as consultant access via Skype.

PRISM

PRISM, a primary care mental health service, is an alternative to accountable care providers, and has been gradually rolled out to all GP practices in Cambridgeshire

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over the last 2 years to assist GPs with patients with mental health issues, in crisis or otherwise (Dollery, 2017). The purpose was to provide patients and GPs with prompt access to GP site-based mental health triage and navigation. The allocated mental health staff also coordinate physical health monitoring, health education and behavioural activation. The local mental health trust was willing to restrict spending on community services for the duration of the 2-year project to allow this project to flourish, with the prospect of reduced referrals and bed usage. The project has now received continuing funding as clear financial benefits have been noted in terms of reduced referrals. Other areas are looking to apply PRISM because it has high user acceptance and improved value for money.

RAID (rapid assessment, interface and discharge)

An alternative to PRISM in major conurbations is RAID (rapid assessment, interface and discharge), where there is immediate mental health screening of all accident and emergency attendees, irrespective of age, level of intoxication or presence of delirium (Singh et al, 2013). The idea is to divert patients with primary mental health problems (especially those with dementia) to the relevant team and to encourage acute care clinicians to carry out prompt investigations. RAID was initially developed in Birmingham, but is increasingly used as part of the 24-hour coverage by liaison psychiatry services. RAID can use interoperability (the ability of computer systems or software to exchange and make use of information) between mental health electronic notes, general hospital and GP information systems, as exemplified in Sheffield.

Street triage

This involves joint working (and sharing information) between mental health and police services when dealing with vulnerable individuals in public places (Keown et al, 2016), again irrespective of intoxication, delirium or age. Compared to RAID and PRISM, sharing information with police services is more controversial. However, operational guidance has produced a usable template involving sharing of 'need to know' information. The purpose was initially to reduce inappropriate placements on section 136 at custody suites, accident and emergency departments and hospital 136 suites. Early evidence from sites such as Newcastle demonstrates that this has occurred, alongside high user satisfaction regarding compassionate and prompt care. The next step for these services is to use peer support workers as the initial point of contact, so that users feel more comfortable about the experience.

Patient-held pre-payment charge cards

A chip and pin card would provide patients with greater choice in registering with an NHS accredited service similar to registering with a dentist (de Silva, 2008). Cards would contain an up to date medication list, information on blood results and relevant alerts. If the patient becomes temporarily incapacitated while attending an emergency care facility, a specialist would be able to access the information via cloud storage of data. Patients would have access to quality and safety measures in order to select a provider. The centres would be paid per patient by the NHS commissioning body in keeping with payment by results. A chip and pin system requires the patient (or carer) to take responsibility to maintain data securely. Alternatively, a smartphone can also function as a charge card via an app.

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Electronic prescribing in psychiatric wards

Although electronic prescribing has been in routine use in primary care (Porterfield et al, 2014), it is new to mental health services. However, three services (Lancashire, Norfolk and Sheffield) have adopted electronic prescribing in wards. The benefits in terms of safety (avoiding dosage errors, warnings about drug interactions and previous intolerances) and clear documentation of prescribing are already known, but the challenge in mental health wards (especially in old age, learning disability and neuropsychiatry) remains rationalising polypharmacy, typically involving sedative analgesia, atypical antipsychotics, benzodiazepines and sedating mood stabilizers. These combinations can lead to aspiration pneumonia, sepsis and cardiac arrhythmias (such as prolongation of QTc interval). Educational warnings added to the electronic prescribing software could help this process.

WhatsApp

This smartphone-based communication system has been used by clinicians in the NHS to exchange non-clinical information, when e-mail is inaccessible or inappropriate (Armstrong, 2017). For example, it could be suitable for a clinical network (such as one for patients with Parkinson's disease), when changes to a pathway could be discussed informally. It could also be useful for GPs to check with specialists about the latest clinical guidance in general. Additionally, doctors often use WhatsApp for telephone calls to discuss individual patients in confidence (Barber, 2016). Despite WhatsApp being encrypted, and reassurance provided by the General Medical Council (2018), breaches in confidentiality of patient details could be an issue, for example in a group chat setting.

Use of technology to avoid delay and improve quality and accessibility

Situation, background, assessment and recommendation

This template (situation, background, assessment and recommendation; SBAR) is used for shift handovers and transfers between wards and community services including copies to social services. It is regularly used in obstetrics and intensive care. The rationale is the recognition that inadequate handovers cause untoward incidents and delays in discharge (Horwitz et al, 2006). In mental health SBAR has been expanded to SBARD (situation, background, assessment, risk and decision) as risk mitigation is integral to mental health conditions (de Silva, 2013).

KEY POINTS

- Over the next decade there will be increasing use of technology to improve quality, safety and accessibility of hospital-generated health care.
- As mental health services have used electronic patient records over the last 10 years, it is likely that technology innovations are most likely to be piloted in psychiatry.
- On safety, use of SBARD (brief description of Situation, Background, Assessment, Risk, Decision) for handovers between ward teams and with community services on discharge, as well as routine use of electronic prescribing will be beneficial.
- Quality and accessibility can be improved using SMS text messaging, as well as Skype-based consultations using smart phones instead of outpatient attendance.
- However, issues of confidentiality and data security remain, and need public consultation.

LEAN working

This method, originally developed for safety and productivity in general medicine at Virginia Mason Hospital in Seattle (Singleton, 2014), has demonstrated improved care delivery in mental health units in Teesside, and is now being applied to community services (Hayward, 2011). This system focuses on continuous improvement by reducing waste (mainly staff time and bed use) by using the experience of frontline staff. In practice, triage of a newly admitted patient within 72 hours of admission followed by daily reviews of the work required to facilitate discharge is routine. Electronic technology used includes electronic white boards with data accessible to community staff linked via teleconferencing. LEAN principles (brevity, use of templates to exchange information) are also used to run a twice-daily teleconference in Lancashire, with discussions about patients awaiting admission, suitable for step-down care or early discharge. This teleconference also looks at risky ward environments (staffing levels and client mix). However, LEAN has not been applied in improving transitions between primary and secondary care, i.e. crossing organizational boundaries.

Skype

This system of virtual face-to-face doctor patient communication (Maheu and Mcmenamin, 2013) has been used by mental health services outwith Britain, but is now being rolled out in south west London by the mental health provider. In order to increase uptake, assisted Skype (a worker using his/her laptop to assist a patient with the consultation) is available. There has been reluctance about using Skype in Britain as a result of confidentiality concerns. However, the convenience of consultant access without attending a hospital clinic is recognized, especially for older people and those in rural communities.

Text messaging

This is used in north west London to remind patients about appointments. It is based on all newly referred patients and carers registering for the messaging service. Patients and their carers can agree to be contacted for an earlier appointment if there is a cancellation, using a first come first served basis through a group text message. It is suggested that text messaging prompts patients to rearrange appointments, allowing new patients to be seen sooner (Moran et al, 2018).

Blister packaging medication

This is routinely used to assist older people, but there is no reason why it cannot be used for others to facilitate concordance (Gutierrez et al, 2017). Blister packs have the additional advantage of reducing over dosage. There are fewer drug administration errors, hence its increasing use in care homes. Directly observed administration can also be facilitated by combining a blister packaging system and a locked safe, accessible to staff using a key pad.

Closed circuit television

Ward-based closed circuit television (CCTV) for observations of patients is the most controversial application of technology, and it has been trialled in Bournemouth in secure units (Warr et al, 2005). Currently, a large proportion of qualified ward nurses' time is spent observing risky inpatients on a one to one basis. Owing to perceived intrusion of privacy, most patients decline meaningful discussions during this time. It is possible for a number of patients to be observed simultaneously by a qualified CCTV operator who can warn nurses if there is a change in presentation. In terms of observing sleep, CCTV is less likely to wake a patient up than using a torch. CCTV supervision frees up nurses to spend more quality time with patients in a less intrusive setting, as well as communicating with carers and doctors.

Conclusions

This review has purposefully conflated electronic and non-electronic technologies in achieving improved accessibility, safety and value for money. Despite widespread use of electronic notes, use of technology is at an embryonic stage in most mental health services, but input from interested clinicians and managers has provided some outstanding examples of applications. It is easy to 'do your own thing' locally, but perhaps there needs to be financial inducements to use models already tested in the field, such as PRISM. There remains fears about confidentiality and civil liberties when using some technologies such as CCTV and liaison with police, but these concerns could be more of an issue for mental health staff than for users and carers; this needs confirmation through consultation of all interested parties. **BJHM**

Conflict of interest: none.

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