

Getting Access to Toxbase for Doctors in the Avon and Wiltshire Partnership

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Abstract

Doctors working in mental health often review patients who have taken an overdose. Having an evidence based resource which has information regarding the toxic doses of the drug taken enables informed discussions with senior doctors and decision making about whether to admit the patient to hospital. No site across the Avon and Wiltshire Partnership (AWP) Trust had access to TOXBASE, the Public Health England drug Toxicology database.

A primary questionnaire (N= 39) found 97% of doctors thought that TOXBASE would be useful and 84.5% could not think of a better alternative.

Through a series of Plan, Do, Study, Act cycles, TOXBASE access was gained for one site (Imber ward, Devizes) and following successful implementation this could be rolled out across all sites in the Trust. Doctors were surveyed and one month after the first site gained access, two out of seven doctors had used TOXBASE and found it useful. Further questionnaires were distributed following three months at three sites and then at six months to everyone. The final questionnaire showed that one third knew they had access and five doctors had used it in clinical context. Action was then taken by creating a TOXBASE on the Intranet site which directed doctors to their local inpatient unit for login details. By the end of the project access to TOXBASE was successfully gained at six out of the seven sites in the Trust. The surveys showed that access to the resource was highly regarded by doctors, and that it had enabled informed discussions with medical colleagues leading to reduced potentially lengthy transfers of patients to medical units. This has high cost implications of the transport of mental health patients, as well as reducing the distress caused to patients.

Problem

For junior doctors working on call in mental health settings, managing drug overdoses is a regular occurrence. One of the authors (CC) worked in Greenlane Hospital, Devizes looking after a ward of 20 patients. Here, junior doctors worked a 1 in 7 on call rota and on average each review about one deliberate overdose a month. The doctor on call is expected to take a history, examine, and make a management plan for patients. Mental health inpatient units typically have no other medical input and no medically trained nursing staff. To ensure the safe management of a patient therefore often requires discussing the event with the Consultant on call, Emergency Department (ED), or the Medical Registrar at the nearest general medical hospital. Often the patients overdose on over the counter drugs such as Nitol (Dihydrophenamine) or a combination of medication. Whilst there is access to a BNF and an on call Pharmacist there is currently no access to the Public Health England drug toxicology database "TOXBASE". This is a commonly used and very helpful resource in general medical settings.

Greenlane Hospital is a community Mental Health Inpatient unit which is an hour away from the nearest District General Hospital. One clinical incident leading to this Quality Improvement Project involved a patient seen whilst on call who had overdosed on 12 Nitol (Dihydrophenamine) tablets she had bought from a chemist. I looked up the drug in the BNF and could not find out signs or symptoms and appropriate management. I tried to gain more

information from Google but could not find any reliable sources of information. I tried to access the database TOXBASE but found that as a site we had no access. Finally I phoned ED, who could not give me verbal advice but would look up the drug on TOXBASE, print it off and fax it across. This took about an hour. Once receiving the information an informed discussion was possible with the Medical Registrar about whether to admit the patient or not.

The BNF is useful for drug interactions but not very informative about overdose signs, symptoms, and management. The on call mental health Pharmacist does have access to TOXBASE however it would involve waking her up in the middle of the night and them reading out the information over the phone. As clinicians access to all necessary information is essential so that an informed conversation and decision can be made to ensure patient safety.

Emergency departments and GP surgery's have access so why not Mental Health Hospitals who frequently manage deliberate overdoses?

Background

Online poisons information services are easy to use and a model for future delivery of treatment guidelines at the point of patient care.[1] TOXBASE is a widely used and respected resource. Alternatives include the BNF and GenMedTx Online however these do not give specific advice regarding drug overdose. There are

online sites such as e-medicine which give some information but it is unclear on what evidence they base it on. The best alternative to TOXBASE found was the National Poisons Unit Helpline (087 0600 6266) or Cardiff Poisons Unit which will give advice over the phone. Online databases such as TOXBASE have been shown to reduce the number of calls to such helplines thus increasing service cost effectiveness.[2]

TOXBASE is a free to use database created and maintained by Public Health England. It can only be accessed by trained clinicians who have access to log in details. The benefits of using TOXBASE are that it is evidence based, has detailed information on a broad range of drugs and where there is insufficient data regarding a drug in overdose it gives case based information. Many NHS sites already have access to TOXBASE including Emergency Departments and GP practices.

An advanced search was performed on BMJ Quality for "TOXBASE" and no matches were found. [November 2014]

Baseline measurement

A questionnaire was created using Microsoft Sharepoint and was sent out to all 275 doctors in the Avon and Wiltshire Partnership (AWP) trust via NHSmail. It consisted of 10 questions which asked where the clinicians look up information regarding overdose, whether they have used TOXBASE before and if they thought access would be useful.

There were 39 out of 275 (14%) returned questionnaires. Out of the responders 41% were core trainees, 33% were consultants with other grades making up the last 26%. Most doctors (92.2%) reviewed patients with overdoses at least once per month and 17.9% replied they reviewed patients with overdoses weekly.

The survey showed 64% of doctors look up the drug in which the patient has overdosed on. The most popular places to research information were the BNF, TOXBASE (half of those which mentioned it pointed out they used an alternative login), "the internet". Less popular were medline, poisons helpline, Maudsley, Oxford handbook, and the trust website.

The majority of Doctors (67%) responded saying they have previously used TOXBASE and 41% tried to access it whilst in AWP. Specifically 15 out of the 39 stated they could not access TOXBASE in AWP due to lack of login details and 2 people said they accessed it through ED.

An overwhelming majority (97%) thought it would be useful to have access to TOXBASE and 84.5% could not think of a better alternative.

See supplementary file: ds5371.docx - "Primary Questionnaire Results"

Design

The aim of this project is to get access to TOXBASE for doctors at each inpatient unit across AWP. The success of the project will be judged on survey results at each stage and ideally the absolute usage data from TOXBASE.

The pilot study will run at Imber ward, Greenlane Hospital, Devizes which is where the author CC was based. This would determine how easy it would be to get access to TOXBASE and whether doctors would find it useful. We hoped that having an existing working relationship with both the clinical lead and administrative staff would help enable this project to work. After 4 weeks of having access to TOXBASE the other junior doctors on the on call rota would be asked if they had used it and if so how useful it had been.

If the pilot study went well, the project could be extended to another two inpatient units which the author LE had close links with: the Victoria Centre in Swindon and Sycamore ward in Bath. After two months a questionnaire would be distributed to doctors working at all three sites. This would determine if the doctors in the area are aware of their access and if any of them had used it in clinical practice.

If the second stage was successful the project could be extended to Lime ward at Callington Road Hospital in Bristol, Foundation ward in Salisbury, Juniper ward in Weston-Super-Mare, and Oakwood ward at Southmead Hospital in North Bristol. The project is anticipated to take around 6 months to complete.

Additional complexities which could negatively affect the sustainability of the project are that each of the clinical leads need to respond to an email from TOXBASE annually to stay registered. As well as this, successive junior doctors need to be aware of the log in details and that they have access. Login details will therefore need to be put in the Junior Doctors on call room and in their handbook which they are given at the start of their placement.

Strategy

Cycle 1:

The plan was to gain access to TOXBASE for Imber ward, Devizes. To achieve this the clinical lead registered with TOXBASE on behalf of the ward. Once TOXBASE replied with the login details these were distributed to the relevant people via email and a poster was placed in the doctor's office. To assess whether this project was successful after four weeks the on call junior doctors were surveyed. Two out of the seven junior doctors surveyed used TOXBASE during these four weeks. Comments from them were positive as TOXBASE helped them assess the patient in a clinical situation. They were also positive about the poster in the doctor's on call room reminding them that the resource was available. From this successful pilot study the project could be expanded to include other sites.

Cycle 2:

LE had close links with both Sycamore ward in Bath and the Victoria Centre in Swindon. These were decided upon to be suitable

See supplementary file: ds5809.docx - "Questionnaire 2 responses"

Post-measurement

Two inpatient sites had access to TOXBASE before the study (Imber ward and Fountain way Hospital, Salisbury). However the lead clinician who had registered Imber ward had forgotten she had access and had not shared the login details. Therefore at the beginning of this study only a handful of doctors out of 275 had legitimate TOXBASE login details. Theoretically all doctors should now have access. The primary questionnaire showed that there was both a desire and need for wider access to TOXBASE.

After 4 weeks gaining access to TOXBASE at Imber ward, 2 out of the 7 junior doctors had used TOXBASE in a clinical situation. Both doctors found the resource helpful to gain evidence based data regarding drugs and subsequently allowed better decision making. Discussion with my colleagues found that all 7 junior doctors were aware of the resource. 5 doctors had not used it as they had not been in a clinical situation requiring it.

After two months of access for both Sycamore ward and the Victoria Centre, and three months for Imber ward a formal questionnaire was sent out. Unfortunately only six responded, all of which were Core Trainees. Four were from Sycamore ward and one each from Devizes and the Victoria centre. Four out of six replies said they were aware they had access. Half knew where they could find their login details. Only one doctor (Devizes) had used it to look up a drug taken in overdose.

At this point TOXBASE were contacted directly to gain audit data. The data showed that it had been accessed 4 times in one day at Imber ward. The junior doctor at Imber ward later contacted CC to say that she found the resource really helpful whilst on a night shift looking after a patient. No one had used it at either the Victoria Centre or Sycamore ward.

These results were disappointing. As the junior doctors had rotated during the three month time frame a further email was circulated to the clinical leads at each location asking if they could remind their local doctors of their access to TOXBASE. An email was sent to a core trainee at each location asking them to check if the login details were in the doctor's office and handbooks.

After these results were collected another junior doctor at Devizes hospital contacted CC to say he used TOXBASE whilst on call at Imber ward to look up a drug. The information on TOXBASE helped him and the medical registrar make an informed decision subsequently decided not to admit the patient to hospital, saving the costs of an ambulance two hours transport time to the nearest appropriate medical unit and an ED admission, as well as distress to a patient.

At six months each locality had access except Southmead Hospital who had not heard back from TOXBASE. 56 Doctors responded in the Questionnaire. 20 Doctors knew they had access, 15 knew where the login details were, and 5 had used TOXBASE. It illustrated a need to communicate the details more widely and put in

sites to extend the project to. Clinical leads at both sites were emailed to ask them if they were interested in registering their inpatient wards. After gaining access for both sites a secretary at each location was asked to circulate the details via email to the relevant people. We also asked a junior doctor at each site to place a poster of the login details into their respective doctor's offices. After two months a questionnaire was circulated to the doctors based at all three participating sites. Results showed that four out of the six people who responded knew they had access. Three doctors knew where they could find the username and password. One doctor had actually used TOXBASE. From the TOXBASE audit department access information could be obtained for these three wards over the two month period. Results showed that TOXBASE was accessed four times in one hour on Imber ward. Although there was poor response to both the questionnaire and only one doctor had used the login details within two months we planned to continue to expand this project as results from the primary questionnaire showed that people were keen to have access. The results also showed we needed to advertise the resource more and think about how we would obtain feedback and survey staff.

Cycle 3:

Access to TOXBASE was planned for Southmead, Callington Road Hospital and Weston-Super-Mare. Again clinical leads at each location were asked to register and once login details were obtained they were distributed. In order to increase doctor's awareness of this new resource we asked the clinical leads to remind the local doctors at their weekly teaching day. We asked a core trainee at each unit to ensure that the TOXBASE code was available in the doctor's room and in the junior doctor's handbook.

Following this, a final survey was then circulated. The Medical Education Department was asked to circulate an email to all doctors to try to increase participation in the questionnaire. This resulted in 54 doctors replying to the survey. 20 Doctors surveyed knew they had access to TOXBASE, 15 knew where to find their username and 5 had used TOXBASE. Comments were again positive from those that had used the resource and even those who have not yet had to use it. However it was highlighted that there was still some Doctors who did not know where to find their login details for their inpatient unit.

A suggestion from the survey was to have the login details for each Inpatient unit on the trust's Intranet site "Ourspace". However this would not be allowed due to TOXBASE requiring separate login details for each site and access for trained clinicians only. Instead a searchable page for "TOXBASE" was created on the Intranet, which informed the reader that access was available through their local Inpatient Unit. A link to each Inpatient ward number was attached. Secretaries were asked to send out the details to the relevant clinicians again and Junior doctors were asked to ensure there was a copy of the details in the Doctor's office and Drug cupboard.

Unfortunately the absolute usage data was unavailable after cycle 1 and cycle 3 as TOXBASE did not send us the data despite multiple requests.

place measures to ensure that people could find out where to get the details from via the Intranet.

See supplementary file: ds5810.docx - "Final Questionnaire TOXBASE QIP"

Lessons and limitations

Ideally there would be one TOXBASE username across AWP as lots of Community Psychiatrists are not based at an inpatient ward, and this would have made the process much simpler. However, TOXBASE has a policy to request separate logins from different wards for auditing purposes. Registering each ward separately added complications as it required Consultant's time, a lot more administration and the process took a lot longer. It took time to explain why we would like the clinical leads, our key stakeholders, to register, and how to do this. Often they would take weeks or months to reply or asked us to email another doctor instead. It then took a little time for TOXBASE to reply with their code, then the clinical lead needed to email back with the details. One site had difficulty registering online and had to fax the details through which meant the process took even longer. Another site registered and got no reply from TOXBASE and after several months of chasing this up we are still awaiting a reply at the time of writing. After gaining login details we relied on one of the local secretaries to email the local doctors and again the time taken to do this varied due to work pressures.

This project relied heavily on emails. Overall the authors sent and received over 200 emails regarding TOXBASE.

There was a good response to our primary questionnaire. However the second questionnaire had a very poor response, even after sending it out multiple times. It is not unusual to get a poor response to questionnaires sent out on mass by email. Ideally we would have talked to the local doctors in person at each site and advertised the resource and later go back to get feedback with a questionnaire. However this was impossible due to the large geographical area of AWP and clashing of schedules. Through using the Medical Education department and explaining the survey a final time a good response rate was achieved for the final survey.

There were two crucial learning points from this project. Firstly the feedback from each survey was not put into practice locally before up-scaling, due to time pressures. For example, after the second survey it was clear that not all the doctors knew where to find the login details to access TOXBASE. Although emails were sent out and the clinical leads were asked to discuss it at the weekly team meeting, the authors did not check that these steps worked before expanding the project. This led to the same problem at the third survey.

Secondly there are missing process measurements. At each stage ideally there would have been both a survey and local usage data direct from TOXBASE. Unfortunately TOXBASE did not provide this despite multiple attempts from the authors. Therefore data was not available for the absolute number of times TOXBASE was used after each intervention. Instead a surrogate marker was used, in the

number of surveys completed.

Conclusion

The site which used TOXBASE the most was Imber ward (Devizes). This may be because it was the first site that had access to TOXBASE or the fact that this was personally discussed with colleagues there and they were more aware of the resource. Another reason could be that Devizes is a one hour drive from the nearest District General Hospital. When assessing patients who have taken a small and likely non-harmful overdose, having access to TOXBASE which gives information about harmful levels of drugs is really useful. It can help discussions with senior doctors and help make decisions on whether hospital admission is needed or whether a patient can be carefully observed on the mental health ward. This clearly reduces costs to the NHS as well as reducing distress to patients.

Although the primary questionnaire showed that doctors thought that they should have access to TOXBASE, in practice it has not been used as much as was initially thought. Some overdoses would not need to be researched on TOXBASE as patients have either taken a very large overdose or small dose of something potentially lethal. In these cases the patient would be immediately taken to hospital and TOXBASE would not change their management. Another reason taken from the second questionnaire, could be lack of awareness of its availability. We have taken steps to try to improve this by asking clinical leads to remind local doctors at their weekly teaching sessions and by talking to a junior doctor at each site to ensure the login information is in the handbook and in the doctor's office.

References

- 1 Bateman DN, Good AM, Laing WJ, Kelly CA. TOXBASE: Poisons information on the internet. *Emerg Med J* 2002;19:31-34.
- 2 Bateman DN, Good AM. Five years of poisons information on the internet: the UK experience of TOXBASE. *Emerg Med J*. 2006 Aug; 23(8): 614-617.

Declaration of interests

None to declare.

Acknowledgements

Dr Hayley Richards (Medical director), Dr Steve Arnott (Director of medical education), Dr Andrew Brindley (Associate Director of medical education), Mrs Shirley Bickers (Pharmacist)

Ethical approval

According to the policy activities that constitute research in AWP, this work met criteria for operational improvement activities exempt from ethical review. The project was registered with, and permission

obtained from, the Medical Lead and Director of Medical Education
in AWP and the Trust Quality Academy.