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Collaboratively planning for Medicines Administration Competency: A survey evaluation

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Abstract

Aims This survey audited and evaluated the experiences of mental health nurses who had undergone the assessment of their competence in the administration of medicines using established assessment frameworks.

Background Medicines management activities have at times been widely criticised. This paper suggests that joint collaborations between HEIs and the NHS in education and training can sequentially start to address some of these criticisms.

Method An evaluation questionnaire using a 22 item closed and open response questions was distributed to 827 practising mental health nurses and 44 graduate mental health nurses in January 2010.

Results 195 (24%) and 41 (93%) graduate mental health nurses responded. Of these respondents 70 registered and 41 graduate mental health nurses had completed the assessment of administration competency frameworks. Overall the assessment frameworks were received positively with the majority stating it had changed their practice and it increased their confidence for administering medicines. The results also include other educational strategies the sample had accessed to inform their practice. Although the results show that environmental factors were perceived as the main barrier to medicines safety this was not reflected in how in this aspect of the competency framework was percieved**.**

Implications for Nursing Management The article discusses how the organisations have collaborated toward creating a 'learning culture' with the aim of achieving safe and competent medicines management practice. The practising nurse can see the organisation's emphasis on medicines management is supporting them in developing their clinical skills and competence. This will hopefully lead to an improved service for people who receive medicines management interventions from nurses. Developing a self-sustaining learning culture sometimes feels akin to searching for the 'holy grail'. The Medicines with Respect competency framework potentially provides a tool to encourage peer review and learning – the building block for more advanced practice.

Introduction

Medicines management encompasses all the activity that addresses the needs of the person who is prescribed medication, including side effect assessment, management and information exchange (White 2004). The role of mental health nurses is to ensure the service user receives the optimal therapeutic effect whilst minimising any potential adverse reactions (Snowden 2010). Building on the ethos that 'Medicines management is everybody's business' (DH 2008) the Universities of

Huddersfield, Hull and Sheffield Hallam with their local NHS Trusts developed the Medicines with Respect Project (MwR). Building on the initial project in Sheffield (Turner et al 2007, 2008), the collaborating organisations sought to implement a stepped approach that linked pre-registration medicines management education and training incrementally through to more advanced medicines management skills to complement the career pathway of the mental health nurse (Hemingway et al 2010). A four stage pathway has been developed where these stages are described (see Fig 1). This article discusses the embedding of this model in the organisations involved and analyses results from an audit evaluating the experiences of mental health nurses who have undertaken one part of the pathway.

Background

It is estimated that up to 90% of people diagnosed with a mental health condition are prescribed medication and organisations need to plan strategies to improve medicines management interventions (HCC 2007). Developing a culture of safety is dependent on robust systems and processes and effective leadership from the organisation, it's managers, and within teams. To show commitment to patient safety, all staff should be competent and active in its promotion. The purpose of this project was to support a robust framework for medication administration across the Trust and to enhance the service user experience of receiving medication.

Medicines management is a core nursing activity (Guy 2007). Nurses are also the largest workforce of health care professionals involved in medicines management and therefore have a major role in the judicious use of medicines, as well as the minimising of any harm when people are prescribed and take medicines. The *1968 Medicines Act* clarified that Doctors *prescribed;* Pharmacists *dispensed; and* Nurses *administered medicines.* However, these roles have moved and evolved, with nurses and other non-medical practitioners able to prescribe medicines as part of their role (Davies 2006, Hemingway & Ely 2009). Although the nurses' role in medicines management has become much more wide ranging, the administration of medicines still plays a major part of nursing interventions with some studies estimating 40% of the nurses' inpatient time spent on medicines management related activities (Armitage and Knapman 2003). Evidence suggests that substandard medicines management is costly. Davies et al (2006) and Pirmohamed (2004) have suggested that up to 6.5% of all patients admitted to hospital, and up to 9% of all patients staying in hospitals, experience medication-related harm. Many of these incidents are preventable, and create an economic burden to the NHS. The National Patient Safety Agency (NPSA) (2007) estimate that preventable harm from medicines could cost in excess of £750 million each year in England alone. The literature identifies some predictors that could contribute to drug administration errors and potential adverse reactions going undetected (Dickens 2006, DH 2004, Ito and Yamazumi 2003). Service user dissatisfaction with interventions are also reported (Happell et al 2002, Coombs et al 2003, Gray et al 2005). Reasons offered to explain the gap between practice and standards are poor psychopharmacology knowledge base of nurses undertaking medicines management activities (Banning 2004, Happell et al 2002, Latter et al 2002, Morrison-Griffiths et al 2002 Ndosi & Newell 2009), workload, staffing, environmental and contextual factors that prevent the nurse being able to concentrate solely on the task of administration (Armitage and Knapman 2003, Armitage 2007, McBride-Henry and Foureur 2007). Drug calculation difficulties are also a factor (Wright K 2007, Preston 2004, Banning 2004). The identification of deficiencies in nurses' performance inevitably raises some questions about the contribution of higher educational institutions involved in the preparation of pre-registration nurses to enhance the knowledge and skills of students on registration.

Commentators have suggested that the rate of technological advance, including pharmacological innovation, places even greater importance on the scientific knowledge base of nurses involved in

administering new drugs. However, many pre-registration nursing programmes in the Project 2000 period placed greater emphasis on the behavioural rather than the biological sciences (Banning 2004, Latter et al. 2001, Morrison-Griffiths et al. 2002). There has been some reversal of that trend following the implementation of a more skills-based approach to nurse education with *Making a Difference* (DH 1999). However, employers continue to report concerns about the scientific and intervention skills and knowledge and understanding needed for clinical competence in medicines management. Criticisms of educational provision include use of traditional teaching methods teaching pharmacology as a science subject that fails to relate biological and pharmacological theory to clinical settings (Jordan 2002, Morrison-Griffiths et al 2002, Banning 2004, Turner et al 2007, 2008, Ndosi and Newell 2009), and an over-reliance on the continuous assessment of medicines management competencies by busy, possibly over-stretched, clinical mentors (Reid-Searl 2010, Wright 2005).

Anecdotally many clinicians and managers have felt that the reduction in practical examinations (or demonstrations of skills) potentially created a deficit in students' skill set. The MwR project affords the opportunity to review and remediate any perceived or apparent deficits. All organisations should aim for a culture that is high reporting but low harm; in other words, staff should see any errors or near misses as an opportunity to learn. The MwR project supports this notion of a 'learning culture', one where staff are constantly challenging themselves and each other to improve their knowledge and practice.

The project steering group suggests the pre-registration and preceptorship stages in mental health nurse development encompass the first two stages of the 'skills escalator' programme. If the nurse is to go on to build competence and confidence in all aspects of medicines management then an appropriate post graduate course that furthered knowledge and expertise was the next step (stage 3). Finally, if the mental health nurse is to make the transition to prescribing medicines (stage 4) then the suggested 'skills escalator' in Fig 1 may support development along a career defined pathway.

Psychopharmacological theory

Student nurses on entering their branch programme (year 2 of training) are given a psychopharmacological workbook to complete, in addition to lectures and achievement of portfolio competencies. Developed in collaboration with nursing and pharmacy colleagues across the region, the workbook encompasses questions assessing the theory of how each individual medication works and the application of the principles of pharmacokinetics and pharmacodynamics to practice. It covers the spectrum of common mental health medicines in use - acetylcholisterase inhibitors, anxiolytics/hypnotics, antidepressants, mood stabilisers and antipsychotics (oral and intramuscular) and includes additional questions related to the role of the nurse in side effect assessment and management, information exchange and rapid tranquilisation. A range of drug calculations of increasing levels of complexity are included for the student to complete.

The aim of the workbook is to prompt scholarship and enquiry inquiry to enable the student to develop a thorough baseline knowledge of the medicines they see in clinical practice and build a useful resource to inform their future practice. It is interesting that some of the students' mentors and colleagues from other disciplines have reported they have also found the questions set in the workbook both useful and challenging.

Administration of medicines competency is determined by two assessments:

The Observed Structured Clinical Examination [OSCE]: The OSCE set in the skills laboratory at the University of Huddersfield has been described elsewhere (Hemingway et al 2010), as has its relationship to this audit:

Assessment of the Administration of Medicine Competency Frameworks (Oral and Intramuscular): These documents use a standard format utilising evidence-based structured criteria and aim to minimise the risk of medicine errors by defining and setting procedures for safe administration. They have been developed from the MwR project, updating an original oral administration framework (Turner et al 2007, 2008) and developing and adding an intramuscular one. The two documents set out four stages integral to the safe administration of medicine; 1. Environmental factors, 2. Preparation prior to administration, 3. Administering the medication and 4. Assessment questions. This allows the assessor and assessee to work with the same criteria. The frameworks have also been identified as a useful tool to prompt discussion and promote team development. When used for assessment, this is carried out by an appropriate clinical mentor or designated senior practitioner, typically one who has studied medicines management as part of their post registration development. However, the tool is also intended to be used for peer assessment amongst colleagues. Two of the universities are utilising the oral and intramuscular frameworks as 'good practice guides' rather than for summative assessments, but with a similar overall learning effect anticipated.

The Audit

The issues that needed to be addressed to embed the MwR project in the respective Trust and University organisations has been reported elsewhere (Hemingway et al. 2010). This audit set out to evaluate the experience of qualified and graduate mental health nurses in assessment of their medicine competency with one trust, South West Yorkshire Partnership NHS Foundation Trust, and the University of Huddersfield as measured by the MwR audit tool.

Setting

This audit was undertaken in West Yorkshire with staff from South West Yorkshire Partnership Foundation Trust and students from the University of Huddersfield. The Trust is a provider of Mental Health and Learning Disability services and serves a population of approximately 900,000. It employs over 900 qualified nurses across South West Yorkshire and they work across a large number of residential and community settings. Mental health nurses administer medication across the various care settings and locations. Students from the University of Huddersfield also, under supervision, administer medication in the same settings.

Aims and Objectives

The aim of this audit was to evaluate the use of the Administration of Medicines Competency Frameworks and:

- Ascertain the views and experience of practising qualified nurses and students of the MwR assessment and process;

- Explore the barriers to administering administration safety are;

- Explore how widely the framework has been utilised;

- Consider where and why the frameworks have been utilised;

- Gain a baseline of medicines management education and training strategies that have been accessed;

- Assess the impact of the frameworks in increasing confidence to administer medication;

- Compare registered and graduate mental health nurse experiences.

Data collection

A 22 item self-administered questionnaire was developed that contained open and closed questions. The use of the questionnaire was an effective way of collecting data from potentially a large sample. The 'mixed method' approach aimed to elicit mental health nurse responses to amplify and clarify the information sought by each closed answer question. The data collected information about background demographic; awareness of the programme; reasons for undertaking the assessment; positive and negative aspects of the assessment, other educational opportunities; perceived benefits the service users have; and; a self-assessment of their confidence in administering medication.

A small pilot of the 20 item questionnaire was completed with a purpose sample of 20 mental health nurses within Older Peoples Services in the Trust, selected because they represented the experience of staff and work based contexts typical of the trust, with to the aim of testing feasibility. Overall, the pilot showed that the MwR assessment tool was received positively and data collection methods were viable (Hemingway et al 2010). The project team, with the support of the Clinical Governance Support Team (CGST), revised the questionnaire after the pilot evaluation. The survey was approved by the Education and Training sub-group of the Drug and Therapeutic Trust Action Group (D&T TAG). The sample frame was derived from the SWYPFT payroll for all registered nurses:

- Inclusions – all practising qualified nurses
- Exclusions – all nurses that work outside clinical areas
- A purposeful sample of graduates entering practice from the University of Huddersfield who had completed the assessment frameworks were also included

In January 2010 the survey was emailed to all relevant staff and posted via the internal mail where emails were not found or to individuals whose electronic mailboxes were full. A reminder was sent in February 2010. The returns were received by CGST either electronically or paper copy for manual data entry. CGST performed the analysis.. All aspects of confidentiality were maintained throughout the project.

Data analysis

For the purposes of this article descriptive data, only will be considered. Anonymised data were entered into the statistical package for social sciences for windows version 18. Statistical advice was provided by a university statistician. Analysis was performed using frequencies, percentages, cross tabulations and measures of central tendency (mean, median, mode, standard deviation, range).

Ethics

For Trust staff, the survey was deemed a service evaluation by the Education and Training sub-group of the Drug and Therapeutic Trust Action Group (D&T TAG). For students, permission to undertake the audit was granted by the School of Health and Human Sciences Research Ethics Panel. Confidentiality was maintained throughout the project.

Findings

Sample

From a total of 827 practising mental health nurses within the trust 195 (24%) completed questionnaires were returned to CGST. 41 (96%) responses were received from students graduating into practice(see table 1). The relatively high response may be due to the fact they completed the questionnaire on their last day in University. Of the Trust staff, 18% (35) were not aware of the MwR programme, 46% (90) were aware of the programme but had not completed the programme and 36% (70) stated they have completed the MwR programme.

Of 195 respondents who had completed the programme, 42 (60%) were from the Older Peoples service, 16 (23%) from Working Age Adults, eight (12%) from Forensics and three (4%) were from Learning Disabilities service. 81% worked in inpatient areas and 19% worked in the community setting.

The respondents who had completed the MwR programme (70 Trust staff / 41 students entering practice) were asked to specify which assessment they have done – oral or IM. Figure 2 shows the breakdown by the Trust staff overall, area of work and the students entering practice (Fig 3).

Overall, over half of Trust staff have completed the oral assessment (n=39 / 56%), with 23 (33%) completing both oral and IM assessments. Unsurprisingly figure 3 shows more inpatient staff have done the oral assessment whereas more community staff have completed the IM assessmentThe students entering practice have completed both assessments.

Reasons for undertaking the MwR assessment

Survey recipients were asked to specify their reasons for undertaking the MwR programme. Fig 4 shows how the sample responded to this question

Overall the main reason for Trust staff to complete the assessment was preceptorship (41% n=29), which is compulsory for graduates so could be expected, followed by clinical team need (36% n=25) showing some areas had adopted a systems approach to implementing the frameworks. Personal development (27% n=19) was next in rank order and showed staff seemingly welcoming the assessment to help them develop clinical skills. Eight staff (11%) identified through the KSF process, perhaps indicating they saw it as a way to progress their career. Seven (10%) staff specified the assessment was due to an incident review; Seven staff stated other reason but did not specify reasons. University students specified preceptorship (the assessment did not have to be repeated in the preceptorship period if passed in their final year at University) (61%), personal development (which is a positive result as this was a compulsory part of their course), (44%) and clinical team need (4%) as their reasons for completing the assessment.

Barriers to safe administration of medicines

The survey recipients were asked what they thought the barriers were to safely administer medication.

Fig 5 shows the perceived barriers to safe administration. Trust staff thought the two main barriers were the environment (70% n=49) and time management (59% n=41). Then followed by complicated documentation 47% (47% n=33), pharmacology knowledge (46% n=32) and service user adherence (46%). Nearly a third stated drug calculations (29%n=32) as a barrier and cultural factors was 14% (n=10). There were some differences between inpatients and community staff. Pharmacology knowledge as a barrier was proportionally higher in the community (62%) to inpatients (43%), whereas time management (43% inpatients / 31% community) and complicated documentation (52% inpatients / 39% community) was lower. Cultural and environmental factors were similar across all groups, including the graduates. Graduates entering practice showed similar results with the proportions slightly lower, with environmental factors (59%) and time management (61%) the main barriers identified.

Value of the MwR assessment

Respondents were asked to specify what aspects of the MwR assessment they found valuable. Fig 6shows the breakdown by Trust staff, area of work and graduates entering practice.

Over half (57%, n=40) of Trust staff thought that discussion with the assessor was valuable, followed by the assessment questions (41% n=29), administering the medication (37%, n=26), preparation prior to administration (34%, n=24) and environmental factors (24%, n=17). There were significant differences between inpatients and community staff where environmental factors were rated more highly by community staff, perhaps reflecting the less structured environments in which they administer, and inpatient staff rated the preparation section of the framework more than did the community staff. Unsurprisingly, students reported administering the medication highly (71%), reflecting their emphasis on practising skills safely followed by assessment questions (61%), again showing their differing perceptions of the usefulness of the frameworks and their relative lack of experiential knowledge compared to Trust staff. The entire sample rated discussion with the assessor highly, and was obviously a part of the process that they found valuable. On the other hand, no group rated (n=111) the environmental factors highly..

Changes to medication administration practice

The survey asked if the MwR assessment had changed respondents' practice. Fig 7 shows the breakdown by Trust staff, areas of work and graduates entering practice. Overall 65% (n=43) of Trust staff stated that they have made an effective change to their practice following the assessment with an average score of 2.50. Community staff had a higher score of 3.0 - slightly more than inpatients staff (2.41). Of the 40 students who answered the question, the majority (91%) stated that they have made an effective change following their MwR assessment. [.

Confidence to administer medication

Significant numbers of Trust staff (n=66) thought the MwR programme had increased their confidence, with 49% (32) feeling very confident and 50% (33) feeling quite confident. One was not all confident and four did not answer the question. The average score was 3.45.

Comment [h1]: give numbers as well as %s

Comment [h2]: The scores should be explained in the methods.

There were no significant differences between inpatients (3.44 average**? mean or median score**) and community staff (3.46 average score). Correspondingly, the 41 students entering practice responded that the MwR programme had increased their confidence with 27% (n=11) very confident and 73% (n=30) quite confident, the average score being 3.26. (see Fig 7)

Educational strategies

Although not directly related to evaluating the MwR frameworks, respondents were asked about the other types of educational strategies they have completed. There were 67 Trust staff who had completed other educational strategies and Fig 8 shows the results of the usefulness of the educational strategies used.

Of Trust staff, all responded that the Trust medicines management updates (100%), University medicines management modules (92%) and personal study (98%) were useful educational strategies. All the community respondents thought that all the education strategies (medicines with respect programme, trust medicines management updates, pharmaceutical company sponsored events and personal study) were found to be were useful; although pharmaceutical events were lower (83%). The main strategies found useful by the inpatients staff were Trust medicines management updates (100%), personal study (97%), university medicines management modules (90%) and MwR (83%). Of the students entering practice, the majority thought that all the educational strategies they had completed were useful.

Discussion

The aim of the MwR assessment is to increase the competence of the administration of medicines. If a large proportion of the Trust nurses are not aware or utilising the assessment, its effectiveness will not be as wide ranging as was originally planned for. It is estimated that not all the registered nurses who have completed the assessment frameworks responded to the data collection request therefore it was not possible to gain a full picture of its use. Webmail as a data collection method may give the opportunity to reach a large sample and related to paper requests be cost efficient however this does not necessarily lead to a large representative sample (Duffy 2002). In this case nurses who had completed the frameworks may not felt they had the time to complete the survey due to clinical commitments, felt the surveys would take too long to complete due the numbers of questions asked.

All the students entering practice had completed the programme as part of their clinical competency assessments, they appeared keen to share their experiences of completing the two frameworks. There has been criticism of nurses in pre-registration training not having the opportunity to hone their skills in administering medication. By making the MwR framework a summative assessment they will have had a rigorous and evidence-based opportunity to hone their skills in this important aspect of their future nursing role.

A positive result that emerged from this survey was that the frameworks were being used as more of an educational strategy with the focus on -prevention rather than as a result of medicine errors which received a low score. Whilst these results give no real new insights into why medication errors occur, they concur with recent studies published (Brady et al 2009, Fry & Dacey 2007, O'Shea 1999). They do, however, give some idea of which areas

need to be targeted by organisations with the aim of reducing the potential of errors occurring (Brown 2001, Cohen 2001). By comparing the student and qualified nurse responses, as well as inpatient versus community contexts, a picture starts to emerge as to what nurses perceive they need.which in itself is surprising as evidence suggests it is often how the nurse adapts to the conditions where they are administering medicines affects whether they do so competently (Palese et al 2009, Brady et al 2009, Fry and Dacey 2007, Wolf et al 2007). Conversely, a large proportion reported the main barrier to safe medicines administration practice as environmental factors but did not rate the environmental preparation section in the MwR framework as the most valuable part of the assessment This may be due to the sample perceiving the most valuable part of the frameworks as the evidence-based updates and honing skills; nevertheless, the research literature highlights the environment where medication is administered as a major causation of errors therefore needs to at the forefront of the mental health nurses' consideration before and during medicine administration. This result is also one which reminds the Trusts to be aware of how the systemic and organisational can impact on their performance on the nurse administering medication. Organisations as a whole need to make safety for medicines management interventions a priority (Palese et al 2009, Brady & Fleming 2009, HCC 2007, NHS 2004).To 'err is human' Armitage 2008) but a supportive organisation can empower the nurse to reduce this likelihood with medicines

The overall majority of sample reported a positive change in their practice. This seems to validate the introduction of the competence frameworks and the aim of introducing a 'learning culture' towards medicines management. Of course, it will be important to build on this positive result and look to increase the opportunity of undertaking the MwR assessment to more Trust staff to update practice

In comparison to the registered nurse respondents students nurses' were not as outrightly confident, but perhaps this could be explained by their stage of career and training. Overall the framework appears to have produced a more confident practitioner. Influencing nurses' thinking and performance when administering medicines is one potential way of improving their competence (Eisenhauer et al 2007). Social Cognitive Theory (Bandura 1986) links confidence with an increase in performance (Kuiper & Pesur 2004). It would be interesting to chart how this confidence affects practice over time.

It is reassuring also that the sample reported that they regularly used the educational strategies available within the Trust and university contracted courses and personal study. The fact that these courses are received positively is a validation of what is available. t Encouragingly the results show Trust and University updates are accessed and more than pharmaceutical sponsored events. Pharmaceutical Industry medicines management sponsored sessions have been reported as biased toward a company's product (Davies and Hemingway 2005, Ashmore et al. 2007). It is encouraging that the updates provided by the trust are accessed and popular rather than relying on the potential bias of the pharma industry sessions which has been reported as sometimes the only continued professional development available in some areas (Jukes and Mentel 2008,.Hall et al 2003) Finally, and encouragingly, all the sample are reporting they are taking responsibility for their own learning relative to medicines they are administering, and are addressing what the NMC expect of registered nurses (NMC 2009a, NMC 2009b).

State the main findings here in 1-2 sentences

Limitations

The intention of evaluating the effectiveness of competency assessment frameworks was not fully met, as anecdotally the evidence suggests that more than 71 nurses have completed the assessments. Poor response rates amongst trust staff limit the true representation of the sample. The sample respondents who completed the MwR assessments is only a relatively small size also negates any real opportunity to conduct any inferential statistical analysis (although any sample containing data from around 200 nurses is certainly of value). Secondly, it is only results from one trust and university. Therefore, no claims to generalisability can be made. The results are also an indication that a process change is happening in terms of the nurses' skill and competence however this has not been demonstrated by cause and effect. It would be interesting to see how this project has impacted on the mental health nurses who have undertaken the MwR pathway over time as has been demonstrated in other medicine management intitiatives for mental health nurses (Gray et al 2004, Jordon et al 2004). The result of this study have also not shown any causal change in the improvement for of MM services for the service user which also limits any implications suggested in this paper.

To truly evaluate the impact of this model of medicine management training would involve a prospective study (ideally a randomised controlled trial) that would evaluate its effects on the practice of the nurse compared to a control sample who had not completed.

Implications for nursing management

The paper illustrates how the organisations are collaborating towards creating a 'learning culture' and promoting safe and competent medicines management practice to minimise adverse events. The findings have shown that the MwR is valued by the nurses who have completed the assessment. The strategies involved have provided the opportunity for the nurses to assess their performance and update their practice. Linking nurses' education and training in medicines management informs this core activity of nursing practice (Guy 2006). The practicing nurse can see the organisations are supporting them in developing their clinical skills and competence. This in turn will lead onto an improved service for people who receive medicines management interventions from nurses. Medicines management is everyone's business and in the example shown in this article as 'shared business' in order to improve the service provision to people who are prescribed medication.

Conclusion

This study has presented a small snapshot of results evaluating the MwR project. Further developments will be the publication of a final report to the local Strategic Health Authority. This will be replicated by similar evaluations in the Humber and South Yorkshire areas as the audit described here. A MwR project phase 2 has begun with a scoping exercise to work towards producing guidance in the medicines management skills within the community setting.

We should be careful however in concluding that the successful completion of the assessment means that the practitioner is always safe. It is merely a snapshot of their competence at that time. However, it will hopefully encourage an ongoing interest in

rechecking and will undoubtedly highlight gaps in knowledge or procedure for some participants. This can only help support safer patient care.

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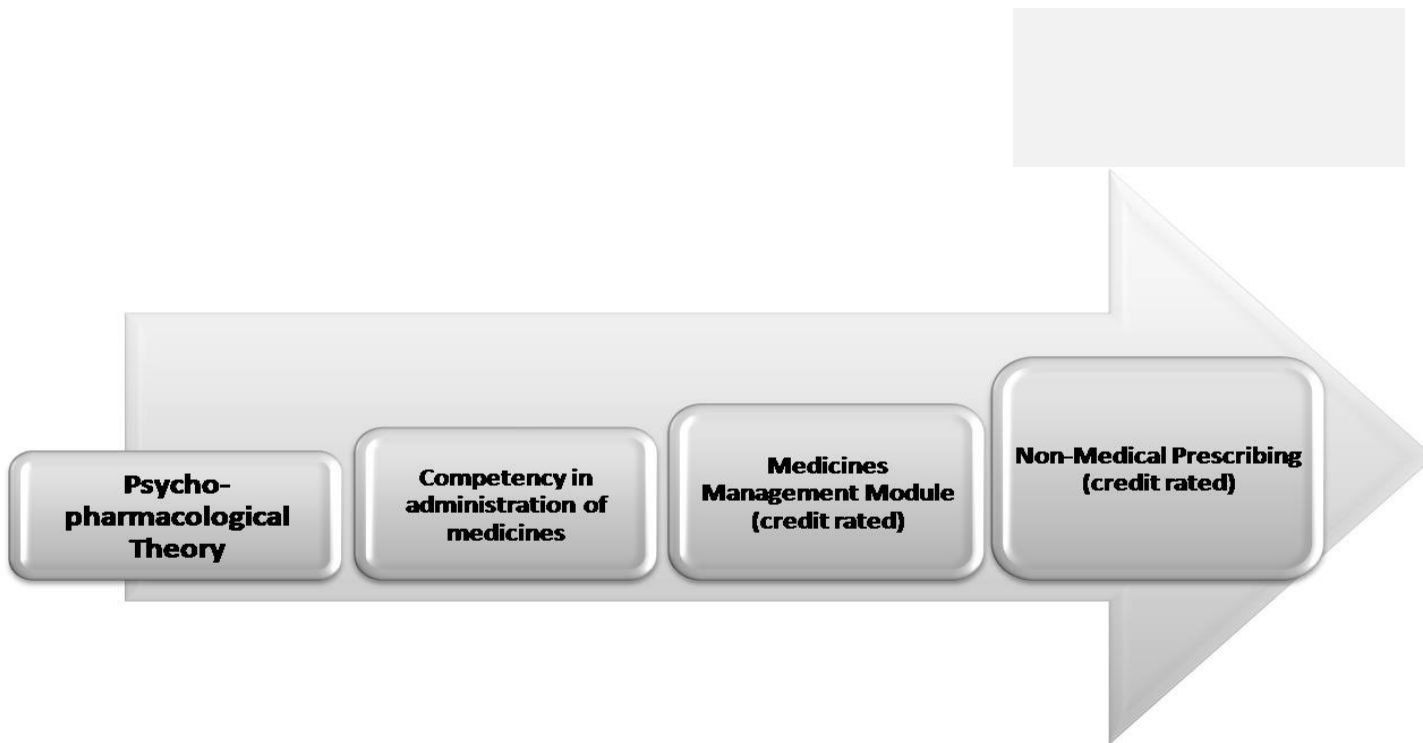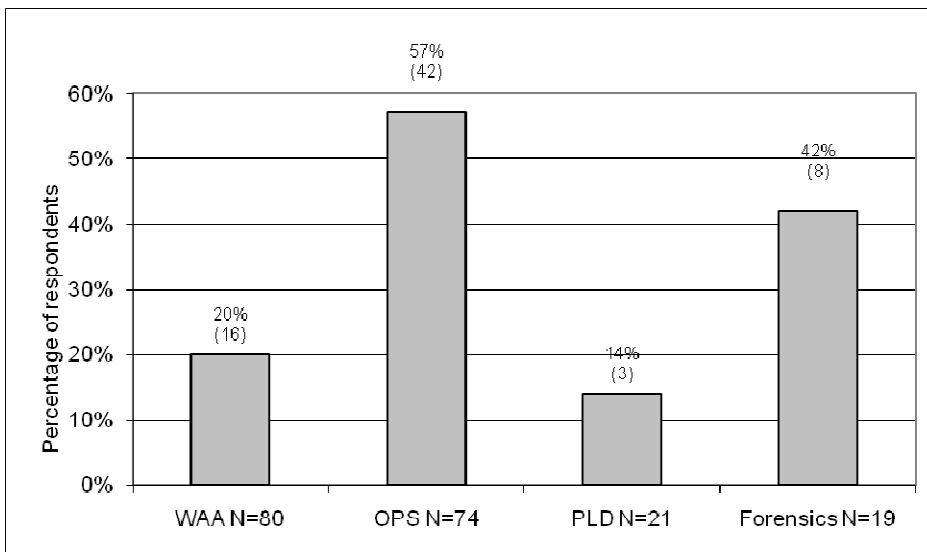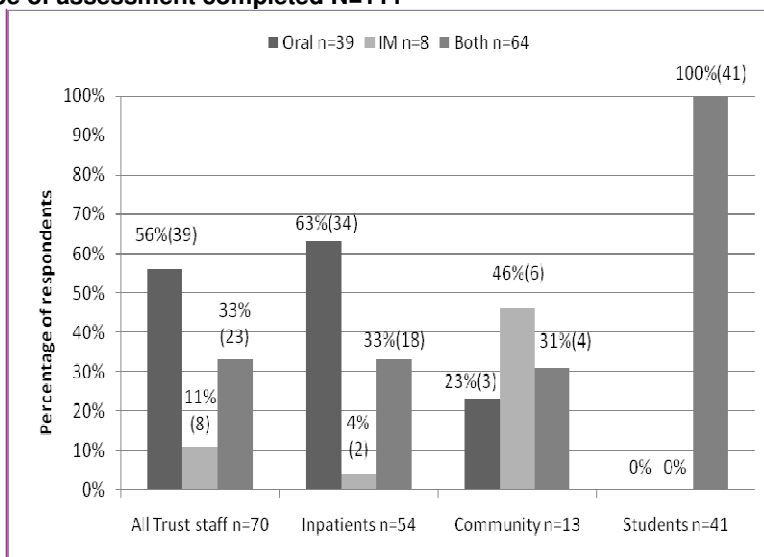
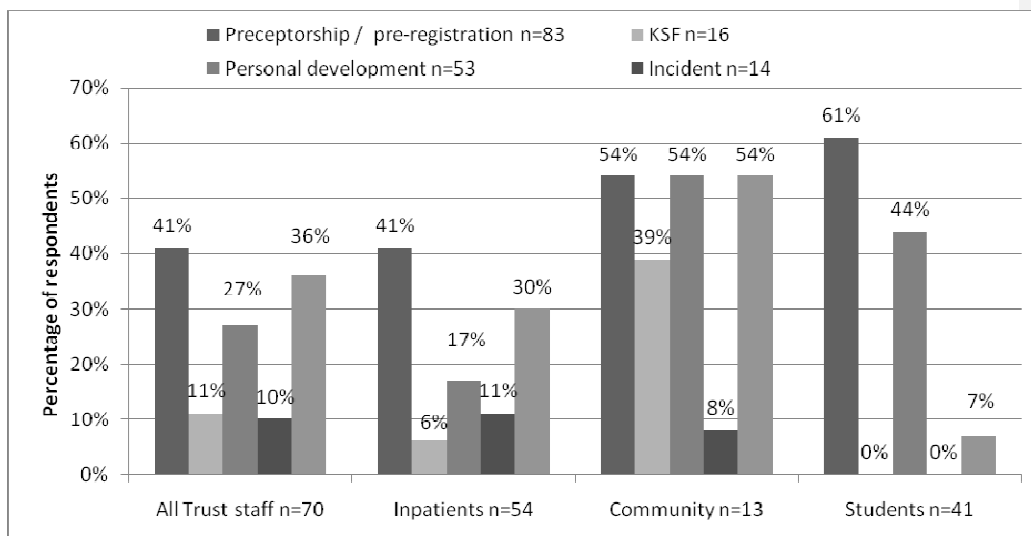**Fig 1Skills Escalator**

Figure 2: Breakdown of Trust respondents by service N=194

Note: One did not specify care group

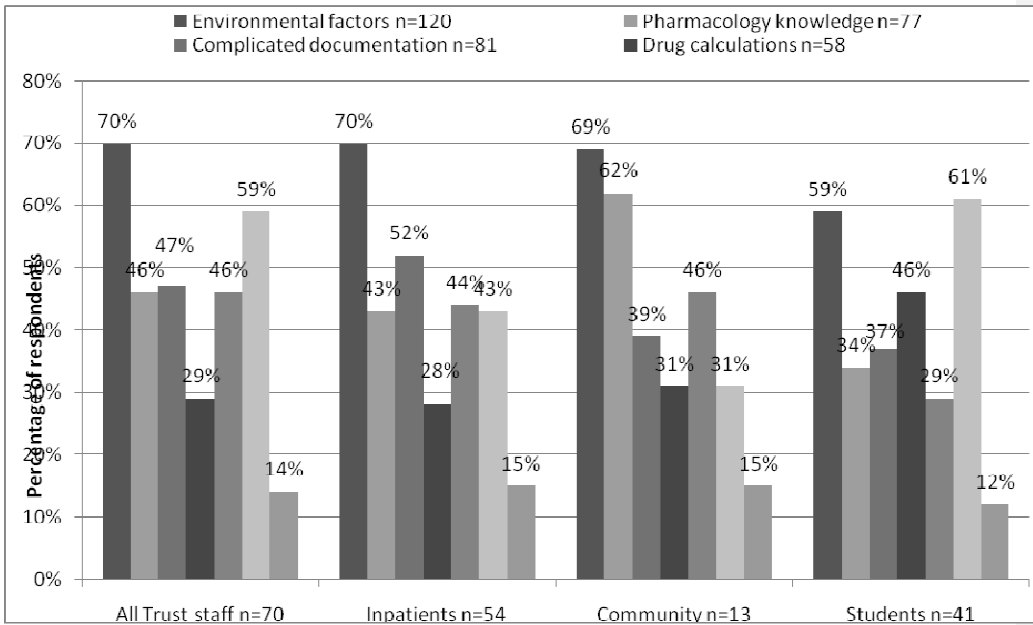**Fig 3: Type of assessment completed N=111**

Figure 4: Reasons for undertaking MWR assessment N=111
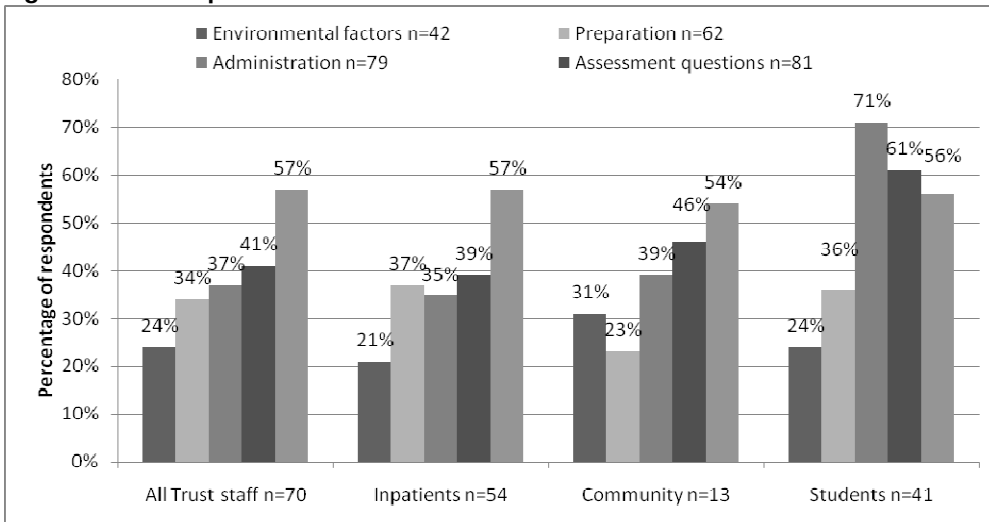
Note: this was a multiple response question

Fig 5: Barriers to safe medication administration

Note: This is a multiple response question

Fig 6: Valuable aspects of the MwR assessment N=111

Note: this was a multiple response question

Fig 7: Changes to medication administration practice N=106

Number of responses	Trust staff N=66	Inpatients N=53	Community N=11	Students N=40
Very effective change	6 (9%)	5 (9%)	1 (9%)	6 (15%)
Effective change	37 (56%)	27 (51%)	9 (82%)	27 (68%)
Least effective change	7 (11%)	6 (11%)	1 (9%)	1 (3%)
No effective change	16 (24%)	15 (28%)	-	6 (15%)
Average score	2.50	2.41	3.00	2.82

Note: Four Trust staff and one student did not answer the question

Fig 8: Usefulness of educational strategies

Educational Strategy	Response	Trust staff	Inpatients	Community	Students
Medicines with Respect programme	Useful	58 (87%)	44 (83%)	12 (100%)	39 (95%)
	Not useful	9 (13%)	9 (17%)	-	2 (5%)
Trust medicines management updates	Useful	32 (100%)	24 (100%)	6 (100%)	22 (100%)
	Not useful	-	-	-	-
University medicines management modules	Useful	23 (92%)	19 (90%)	4 (100%)	31 (97%)
	Not useful	2 (8%)	2 (10%)	-	1 (3%)
Pharmaceutical company sponsored events	Useful	18 (64%)	12 (57%)	5 (83%)	21 (95%)
	Not useful	10 (36%)	9 (43%)	1 (17%)	1 (5%)
Conferences	Useful	11 (73%)	4 (50%)	6 (100%)	13 (93%)
	Not useful	4 (27%)	4(50%)	-	1 (7%)
Personal study	Useful	47 (98%)	37 (97%)	8 (100%)	29 (100%)
	Not useful	1 (2%)	1 (3%)	-	-