

Five Years of Experience with the Residency Matching Service

In 2003, the Canadian Hospital Pharmacy Residency Board (CHPRB) introduced a national residency matching service in an effort to provide a single process that was efficient, effective, and equitable for all involved. CHPRB-accredited and accreditation-pending residency programs in pharmacy practice are required to participate in the CHPRB Residency Matching Service. Similar matching services are used in other professions, including medicine, dentistry, accounting, and law. In this report I present data for the first 5 years of experience with the CHPRB Residency Matching Service.

In a matching service, applicants apply directly to the residency programs they are interested in, and the applicants and program representatives interview and evaluate each other independent of the matching service. When all of the interviews are complete, each applicant submits a rank-order list, indicating the programs from which he or she is prepared to accept an offer, in order of the applicant's preference. Similarly, each program completes a rank-order list specifying the applicants to whom it is prepared to offer a position, in order of the program's preference. The matching process simulates the making of offers by programs and the acceptance or rejection of offers by applicants based on the rank-order lists submitted.

The CHPRB is responsible for establishing the policies of the Residency Matching Service and for monitoring its implementation. Since 2003, more than 500 candidates have sought residency positions through the matching service (Table 1).

Table 1. Data for Canadian Hospital Pharmacy Matching Service

Variable	2003	2004	2005	2006	2007
Programs registered	28	29	30	31	29
Positions available	61	60	64	71	72
Registered candidates	84	80	92	128	151
Matched candidates	59	51	62	69	72

These data indicate that an increasing number of residency positions are available in Canada; the number of candidates applying for residencies is also increasing.

The CHPRB plans to continue providing an orderly and transparent matching process for residency applicants and programs nationally.

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Bedside Best Bang for Buck!

We read with interest the article by Joan Marshman and others¹ about medication errors in Ontario acute care hospitals. Information like this is useful in increasing awareness of, and advancing, patient safety. As the authors point out, their conclusions are similar to those generated by other data, and the rate of errors that could have caused harm was low (less than 3%). We also note that the data for this trial were collected by pharmacists. Although this might have been necessary for the purposes of the trial, we hope that pharmacists would not be used for ongoing programs.

We also read with interest the article by Barbara Farrell and others,² which hints at another and, we would argue, preferable way to improve patient safety: having pharmacists provide direct patient care to reduce unnecessary drug usage. A recent study by Bond and others³ supports this approach. These authors showed that a number of clinical pharmacist activities provided the best evidence for reductions in adverse drug reactions in patients who had been admitted to hospital.

It is important in aligning resources that we assess the causes and the scope of drug-related mortality. As reported by the Audit Commission in the United Kingdom, even if we prevented every death from a medication error, we would reduce drug-related mortality related to adverse reactions and medication errors by less than 10%.⁴ Surveillance programs that simply identify a potential problem (few of which will pose a risk to the patient) would seem to have a lower priority than programs such as those as described by Farrell and Bond and their coauthors.

Technological solutions are important tools in improving patient safety, but pharmacists and pharmacy departments would do well to remember that ultimately human intelligence and care are what is needed on an ongoing basis or, as Dr Luis Gonzales has stated, "We must come out from behind the counters and computer terminals and stand at the bedside of patients, who are dying without our needed expertise".⁵

In a system of limited resources we need to allocate these resources wisely and ethically. Any system for recording and tracking medication error rates needs to be easy to manage and should minimize the use of professional staff.

References

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Education Regarding Medication Order Errors

Marshman and others¹ have provided a meaningful perspective on the prevalence of medication error events in Ontario acute care hospitals. Within their conclusion, the authors suggest staff education as a means to reduce event rates. Here, we reveal the preliminary results from an educational series with internal medicine medical residents at an academic medical centre.

Whereas Marshman and others examined medication error events, in our study we observed the effect of a bimonthly educational session on the number of inappropriate medication orders received by the inpatient pharmacy. All medication orders that were flagged by staff pharmacists as inappropriate were included in the analysis. Inappropriate medication orders were defined as one of the following: an order using unapproved abbreviations (as mandated by the Joint Commission on the Accreditation of Healthcare Organizations), a wrong or missing frequency, a wrong or missing route, a wrong or missing dose, a wrong medication, a "resume medications" order, a "prn" (as needed) order

without an indication, a double-range order, an order for which the patient has an allergy, an incomplete order form, or an order without the prescriber's signature. The educational intervention to internal medicine residents was a 1-h initial didactic lecture followed by 10-min descriptions of recent and pertinent hospital medication order errors every 2 weeks.

This ongoing investigation was approved by the University of Toledo Health Sciences Campus institutional review board. One month of baseline data were collected before the educational sessions began. Among all inpatient pharmacy orders, initial data showed an error rate for medication orders of 2.9% (1116 of 38 275 orders). Following the initial didactic lecture and 3 follow-up sessions, the error rate was reduced to 1.9% (657 of 35 441 orders) ($p < 0.001$). Even though the volume of medication orders fell by 7.4%, there was a 36% relative reduction in medication order errors. About 30% of the time that staff pharmacists spent on order entry was used for clarifying medication order errors, and the relatively few medication orders with problems took a significant amount of time to resolve.

The limitations of this study include the relatively brief duration of the study thus far and the large number of prescribers (other than internal medicine residents) that are accounted for in the error rates. Within the institution, medication orders are predominately written by residents. Internal medicine and subspecialty services form a large percentage of overall institutional medication orders; thus, changes in error rates within this subgroup of prescribers could help delineate an effect of the educational intervention. Therefore, the education series limited to the internal medicine residents served as an excellent pilot before it was extended to other institutional residency programs. When the numbers of medication order errors were examined by patient unit, we found significant reductions for units with internal medicine activity; other patient care areas did not have such reductions.

Interestingly, a search of the medical literature (MEDLINE, International Pharmaceutical Abstracts, Iowa Drug Information System) did not reveal any previous reports of the impact of an educational intervention on prescriber error rates. Interventions to reduce medication errors that have been proven successful need to be widely disseminated. As well, each institution should compile such data to both inform and assess the impact of future attempts to lower medication error events. Given attempts to be ever more efficient in our use of health care resources, knowledge of successful interventions to reduce medication-related errors is prudent.

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