Position Statement: Medical Toxicologist Participation in Medication Management and Safety Systems - Oct 2012

Disclaimer
While individual practitioners may differ, this is the position of the American College of Medical Toxicology (ACMT) at the time written, after a review of the issue and pertinent literature.

Background
Hospital committees are regularly meeting working groups either required by regulatory agencies, oversight organizations, or accrediting bodies, or established by hospital administration as critical elements to the safe practice and monitoring of healthcare delivery. Examples of working groups that address medication management and medication safety systems include the Pharmacy and Therapeutics (P&T) Committee (also known as the Formulary and Therapeutics, Formulary Committee, or Pharmaceutical Stewardship Committee, et al.) and the Medication Safety Committee (MSC) (also known as the Medication Safety Improvement, Drug Safety Committee, et al.). Within a specific institution, other organizational structures (Departments and/or Committees) may address or support these missions, such as Quality, (Patient) Safety, Performance Improvement, and Risk Management. The P&T committee (or equivalent) commonly determines the hospital formulary and manages medication utilization.[1] Medications are included or excluded based on factors such as efficacy, safety, cost, dosing, the needs of the organization, and the patient population served. The P&T Committee may perform pharmacoeconomic assessments or financial evaluations to minimize pharmacy budget impact.

The MSC (or equivalent) commonly reviews medication errors and adverse drug events and develops systematic solutions to mitigate the risk of recurrent episodes and similar incidents. Medication errors are mistakes involving substances used for medical treatment (including, but not limited to, prescription and nonprescription pharmaceuticals, biologics, relevant devices, respiratory therapy treatments, diagnostic and contrast agents, parenteral nutritional and concentrated electrolytes solutions, vitamins, and blood derivatives, et al.), whether or not patient harm results. According to the National Coordinating Council for Medication Error Reporting and Prevention, “Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use."[2] Adverse drug events may result not only from (preventable) medication errors, but also from known side effects, drug-drug interactions, drug-alternative medicine interactions, unique patient-specific factors such as pharmacogenetics or underlying comorbidities, and idiopathic reactions. Data are usually collected by hospital pharmacies, quality improvement and risk management departments, and physician peer review systems, although under-reporting is common. Medication errors and adverse drug reactions are common and costly.[3-13]

Medical Toxicologists have unique knowledge, training, and experience that may aid both the P&T and MSC committees (or equivalent) in fulfilling their duties.[14]

1. Medical Toxicologists are physicians involved in clinical care of patients. They have expertise in pharmacotherapeutics, pharmacokinetics, adverse drug reactions, drug-drug interactions, overdose, and risk-assessment. Medical Toxicologists can make recommendations regarding the admission, change in status, or deletion of a medication to the formulary based on this expertise.
2. Medical toxicologists are in a unique position to identify, investigate, and treat the consequences of medication errors and adverse drug reactions. They may assist in decreasing the incidence of errors in their institutions through identification and elimination of systems errors and aggressive education of health care providers.
3. Medical Toxicologists may aid healthcare organizations in preparing guidelines for safe use of high-risk medications[15] such as antithrombotic agents, glycemic control agents, chemotherapeutics, opioids, procedural sedation agents, and others.
4. Medical Toxicologists may aid their medication management committees on the policies, protocols, or guidelines for off-label uses of FDA-approved medications and for restricted use policies, protocols, or guidelines of certain medications and therapies.
5. Medical Toxicologists are uniquely qualified to discuss the antidotes and therapies for poisonings from adverse medication events, therapeutic misadventures, or overdoses. Medical Toxicologists may aid hospitals in developing guidelines for their safe use in appropriate situations.
6. Medical toxicologists may aid their hospitals in improving often underreported adverse events by ensuring their appropriate and precise capture through such channels as the U.S. Food and Drug Administration’s MedWatch Program, appropriately certified Patient Safety Organizations, health care systems databases, or ACMT’s ToxIC Registry.[16,17]

Conclusion

Due to Medical Toxicologists' unique knowledge, training, and experience, it is ACMT's position to encourage hospitals to utilize Medical Toxicologists in their medication management and medication safety systems. This may include membership on relevant committees or consultative roles to these committees. ACMT encourages its members, where relevant, to be involved in local medication management systems.

Medical Toxicologists should assist in the development, adoption, and monitoring of error preventative and detection measures such as computerized order entry, bar coding of medications, etc. in their institutions whenever practicable.[18-20] ACMT encourages these practices among its members, as well as reporting of medication errors which may be encountered.

References

1. American Society of Health-System Pharmacists. ASHP guidelines on the pharmacy and therapeutics committee and the formulary system. Am J Health-Syst Pharm. 2008;65:1272-83.
2. National Coordinating Council for Medication Error Reporting and Prevention. About Medication Errors. What is a Medication Error? National Coordinating Council for Medication Error Reporting and Prevention: published online, ©1998-2012. Available at: http://www.nccmerp.org/aboutMedErrors.html. Accessed June 22, 2012.
3. Bates DW, Cullen DJ, Laird NM, et al. Incidence of adverse drug events and potential adverse drug events: implications for prevention. JAMA. 1995;274:29-34.
4. Bates DW. Frequency, consequences and prevention of adverse drug events. J Qual Clin Pract. 1999;19:13-17.
5. Beckett RD, Sheehan AH, Reddan JG. Factors associated with reported preventable adverse drug events: a retrospective, case-control study. Ann Pharmacother. 2012;46:634-41.
6. Brennan TA, Leape LL, Laird NM, et al. Incidence of adverse events and negligence in hospitalized patients-results of the Harvard Medical Practice Study I. N Engl J Med. 1991;324:370-376.
7. Budnitz DS, Lovegrove MC, Shehab N, Richards CL. Emergency hospitalizations for adverse drug events in older Americans. N Engl J Med 2011;365:2002-12.
8. Dormann H, Muth-Selbach U, Krebs S, et al. Incidence and costs of adverse drug reactions during hospitalization. Drug Safety. 2000;22:161-168.
9. Hug BL, Keohane C, Seger DL, Yoon C, Bates DW. The costs of adverse drug events in community hospitals. Jt Comm J Qual Patient Saf. 2012;38:120-6.
10. Kohn LT, Corrigan JM, Donaldson MS, eds. To Err is Human: Building a Safer Health System. Washington, D.C.: National Academy Press, 2000.
11. Leape LL, Brennan TA, Laird N, et al. The nature of adverse events in hospitalized patients: results of the Harvard Medical Practice Study II. N Engl J Med. 1991;324:377-384.
12. Leape LL. Errors in medicine. Clin Chim Acta. 2009;404:2-5.
13. Thomas EJ, Struddert DM, Burstin HR, et al. Incidence and types of adverse events and negligent care in Utah and Colorado. Med Care. 2000;38:261-271.
14. Perrone JM, Nelson LS. Pharmacy and Therapeutics Committees: Leadership opportunities in medication safety for medical toxicologists. J Med Toxicol. 2011;7:99-102.
15. Institute for Safe Medication Practices. ISMP's List of High-Alert Medications. Published online: ISMP, 2012. Available at: https://www.ismp.org/tools/highalertmedications.pdf. Accessed June 22, 2012.
16. Emmendorfer T, Glassman PA, Moore V, Leadholm TC, Good CB, Cunningham F. Monitoring adverse drug reactions across a nationwide health care system using information technology. Am J Health Syst Pharm. 2012;69:321-8.
17. U.S. Food and Drug Administration. MedWatch: The FDA Safety Information and Adverse Event Reporting Program. Last Updated: 06/21/2012. Available at: http://www.fda.gov/Safety/MedWatch/default.htm. Accessed June 22, 2012.
18. Nwulu U, Nirantharakumar K, Odesanya R, McDowell SE, Coleman JJ. Improvement in the detection of adverse drug events by the use of electronic health and prescription records: An evaluation of two trigger tools. Eur J Clin Pharmacol. 2012 Jun 17 [Epub ahead of print].
19. Ferner RE. Medication errors. Br J Clin Pharmacol. 2012;73:912-6.
20. Menendez MD, Alonso J, Rancaño I, Corte JJ, Herranz V, Vazquez F. Impact of computerized physician order entry on medication errors. Rev Calid Asist. 2012 Mar 30 [Epub ahead of print].