The consensus of the Pharmacy Practice Model Summit

This list of the Pharmacy Practice Model Summit's 147 points of consensus about optimal pharmacy practice models in hospitals and health systems is categorized according to the major sections of the summit proceedings. The "beliefs and assumptions" in each section reflect summit participants' thoughts about why change is necessary, the major barriers to change, and the facilitators of change. The "recommendations" constitute summit participants' consensus advice on how to create sustainable pharmacy practice models in the nation's hospitals and health systems. In total, the consensus of the summit is a vision for what pharmacists need to do to "ensure the provision of safe, effective, efficient, and accountable medication-related care for hospital and health-system patients, taking into account the education and training of pharmacists, the prospect of enhancing the capacity of pharmacy technicians, and the current and future state of technology" (quoting from the first objective of the Pharmacy Practice Model Initiative).

The statements considered for consensus began as a 174-item questionnaire completed by voting participants in advance of the summit. The 85 statements that received "strongly agree" or "agree" ratings from at least 80% of respondents were accepted as points of consensus and were not discussed further at the summit. Seven items received "disagree" or "strongly disagree" ratings from at least 40% of respondents and were not considered further. The remainder of the survey items (plus other statements created in response to comments on the survey or through summit discussion) were considered at the summit in small-group and whole-group discussions and then voted on using hand-held electronic polling devices. In the onsite voting process, an item was accepted as a point of consensus if at least 80% of respondents agreed that it should be accepted. Full details on the survey and consensus methods and a complete voting record on items in the presummit questionnaire and at the summit are included with these proceedings and appear as Web-only publications at www.ajhp.org.

The operational definitions used in the initial questionnaire appear in the appendix.

Although this document does not constitute official ASHP professional policy, it is being assessed by the Society for potential implications for new or revised policies.

A. Imperatives for new pharmacy practice models

Beliefs and assumptions

A1. There is opportunity to significantly advance the health and well-being of patients in hospitals and health systems by changing how pharmacists, pharmacy technicians, and technology resources are deployed.

A2. In the next 5–10 years, hospitals and health systems will be under increasing pressure to cut operating costs.

A3. In the next 5–10 years, hospital and health-system executives will require pharmacy department operations to be more efficient.

A4. Within the next few years, financial pressures on hospitals and health systems will force them to pursue significant changes in how their pharmacy resources are used.

A5. Pharmacy departments need to take responsibility for contributing to the overall financial health of their hospital or health system.

A6. In the next 5–10 years, the expectation of hospital and health-system executives and medical staff leaders for pharmacists to help ensure the cost-effective use of medications will increase.

A7. In the next 5–10 years, required quality measures related to medication use in hospitals and health systems will increase.

A8. In the next 5–10 years, hospital and health-system executives and medical staff leaders will expect pharmacists to help ensure compliance with quality-of-care standards.

Recommendation

A9. All patients should have a right to the care of a pharmacist. (Summit participants recognized that resources have to be allocated according to the complexity of patients' and organizational needs.)

B. Optimal pharmacy practice models: Characteristics, requirements, and challenges

Beliefs and assumptions

B1. To achieve optimal pharmacy practice models, pharmacists must perceive themselves as, and at all times act as, professionals.

B2. Essential elements of a pharmacy practice model can be developed for use in all hospital and health-system departments of pharmacy.

B3. All hospital and health systems will not require the same level of pharmacist-provided drug therapy management.

B4. In the next 5–10 years, there will be an increasing demand among new pharmacy graduates for residency training.

B5. In the next 5–10 years, an increasing number of pharmacists will pursue clinical specialization.

B6. *The following are barriers to the development of optimal pharmacy practice models:*

B6a. Insufficient leadership within the field of hospital and health-system pharmacy to catalyze change.

B6b. Resistance to change from current pharmacy staff.

B6c. Lack of pharmacy staff resources.

B6d. Lack of qualified pharmacy technician staff.

B6e. Lack of automation.

B6f. Lack of technology connectivity.

B6g. Insufficient recognition—by health care executives, medical staff, nursing staff, and others outside the pharmacy profession—of the value of pharmacists' provision of drug therapy management services.

B6h. Lack of hospital or health-system leadership support.

B6i. State laws and regulations that require direct pharmacist supervision of medication distribution.

B6j. State laws that limit pharmacists' scope of practice.

Recommendations

B7. Hospital and health-system pharmacists must be responsible and accountable for patients' medication-related outcomes.

B8. Drug therapy management should be provided by a pharmacist for each hospital inpatient.

B9. For hospitals and health systems that provide ambulatory care services, drug therapy management should be available from a pharmacist for each outpatient.

B10. Pharmacists who provide drug therapy management should be certified through the most appropriate Board of Pharmacy Specialties certification process.

B11. Pharmacist-provided drug therapy management should be prioritized using a patient medication complexity index.

B12. A patient medication complexity index should be developed that includes factors such as severity of illness, number of medications, and comorbidities.

B13. As an essential member of the health care team, pharmacists must have privileges to write medication orders in the health care setting.

B14. Through credentialing and privileging processes, pharmacists should include in their scope of practice prescribing as part of the collaborative practice team.

B15. Pharmacists must be allowed to document recommendations and follow-up notes in patients' medical records.

B16. Pharmacists should be required to document and sign recommendations and follow-up notes in the patients' medical records.

B17. Proactive and ongoing assessments and risk mitigation of medication-use systems must be a primary responsibility of all pharmacists regardless of practice setting or role.

B18. Pharmacists must be involved in identifying, developing, reviewing, and approving new medication order sets.

B19. Pharmacists should actively monitor for and report potential and actual adverse drug events.

B20. Pharmacists should facilitate medication-related continuity of care. (See also B23l.)

B21. Pharmacists should use patient-specific data to be leaders in disease prevention and wellness.

B22. Pharmacists should be part of accountable care organizations and medical homes.

B23. *The following characteristics or activities should be considered essential to pharmacist-provided drug-therapy management in optimal pharmacy practice models:*

B23a. Accountability for the development and documentation of medication-related components of the patient care plan.

B23b. Review of medication orders before the first dose is administered.

B23c. Daily patient-specific medication review.

B23d. Monitoring of patient response to medication therapy.

B23e. Adjustment of medication doses based on patient response or pharmacokinetic characteristics of the medication.

B23f. Adjustment of medication regimens based on genetic characteristics of the patient.

B23g. Monitoring of critically important serum medication concentrations and other clinically important laboratory analyses.

B23h. Authority to order serum medication concentrations and other clinically important laboratory analyses.

B23i. Authority to adjust dosage for selected medications.

B23j. Participation in antimicrobial stewardship.

B23k. Medication reconciliation in the emergency department; upon admission, interhospital transfer, and discharge; and in the ambulatory care setting.

B23l. Establishment of processes to ensure medication-related continuity of care for discharged patients. (See also B20.)

B23m. Provision of at discharge education to patients.

B23n. Participation on rapid-response teams.

B23o. Participation on resuscitation teams.

B23p. Pharmacist completion of ASHP-accredited residency training or achievement of equivalent experience.

B23q. Pharmacist expertise in literature evaluation.

B23r. Hospital-level or health-system-level credentialing and privileging processes.

B24. *Every pharmacy department should:*

B24a. Identify drug therapy management services that should be provided consistently by its pharmacists.

B24b. Develop a plan to reallocate its resources to devote significantly more pharmacist time to drug therapy management services.

B24c. Develop a plan to allocate pharmacy student time to drug therapy management services.

B24d. Develop, maintain, and update medication-use policies.

B24e. Ensure institutional safe medication use.

B24f. Play a critical role in ensuring that the hospital or health system adheres to medication-related national quality indicators.

B24g. Play a critical role in ensuring that the hospital or health system adheres to medication-related evidence-based practice guidelines.

B24h. Track and trend adverse drug events in the hospital or health system.

B24i. Manage prospective medication-use evaluation programs to improve prescribing.

B24j. Manage retrospective medication-use evaluation programs to improve prescribing.

B24k. Identify problem-prone and high-risk therapies using preestablished criteria.

B24l. Routinely review hospital or health-system antibiotic resistance patterns.

B24m. Track and trend pharmacist interventions.

B25. *In optimal pharmacy practice models:*

B25a. Pharmacists must have oversight and responsibility for medication distribution.

B25b. The role of pharmacists in frontline practice should not be limited to drug distribution and reactive order processing.

B25c. Individual pharmacists should not be engaged specifically in drug therapy management without an understanding and responsibility for the medication-use or delivery systems.

B25d. Individual pharmacists must accept responsibility for both the clinical and the distributive activities of the pharmacy department.

B25e. Clinical specialist positions are necessary to advance practice, education, and research activities.

B26. Contemporary pharmacy education must prepare pharmacists for an expanded role in drug therapy management in hospitals and health systems.

B27. Curricular changes are required in colleges of pharmacy to prepare students for a significantly larger role in drug therapy management than is currently achieved in most hospitals and health systems.

C. Advancing the application of information technology in the medication-use process

Beliefs and assumptions

C1. In most hospitals and health systems, improvements in technology will be required for pharmacy departments to fully achieve optimal deployment of pharmacist and pharmacy technician resources.

C2. *The following technology solutions in hospitals and health systems are important enablers in the development of optimal pharmacy practice models:*

C2a. Electronic medical records systems.

C2b. Inpatient computerized prescriber-order-entry (CPOE) systems.

C2c. Outpatient CPOE systems.

C2d. Clinical decision support integrated with CPOE.

C2e. Order management and review organized around drug therapy management services.

C2f. Real-time monitoring systems that provide a work queue of patients needing review and possible intervention.

C2g. User interfaces that are optimized for drug therapy management services.

C2h. A work queue that provides documentation and management tools for drug therapy management services.

C2i. Automated systems to notify pharmacists when serum medication concentrations or other clinically important laboratory test values fall outside of a therapeutic or normal range.

C2j. Use of bar-code technology during the inventory, preparation, compounding, and dispensing processes.

C2k. Automated dispensing/robotics.

C2l. Use of bar-code technology during medication administration.

C2m. Integration of intelligent infusion devices into a closed-loop medication-use process (i.e., CPOE–electronic medication administration record–bar-code-assisted medication administration).

C2n. Automatic capture of information on pharmacist interventions.

C2o. Systems that efficiently capture and report pharmacy metrics, outcomes data, and pharmacists' value.

Recommendations

C3. No hospital should be exempted from compliance with technology-related medication-use safety standards.

C4. Sufficient pharmacy resources must be available to safely develop, implement, and maintain technology-related medication-use safety standards.

C5. Telepharmacy technology, to enable remote supervision, should be available for use in pharmacy departments.

C6. Telepharmacy technology that allows pharmacists to interact with patients from a remote location should be available for use in pharmacy departments.

C7. Electronic medical records must be designed to align pharmacists' documentation outlining care provided as well as a method to trace and ensure the quality of care provided.

C8. Human factors engineering principles should be employed to design and optimize safety, efficiency, and effectiveness of technology.

C9. Technology in medication-use systems should be designed to demonstrate the impact of pharmacy services on patient outcomes.

C10. Technology in medication-use systems should be designed to support pharmacy processes to improve patient outcomes.

C11. Colleges of pharmacy should be required to provide informatics training for all pharmacy students to ensure graduates' success in optimal pharmacy practice models.

C12. Hospitals and health systems and colleges of pharmacy should collaborate to ensure that appropriate pharmacy informatics principles are embedded in the curriculum.

C13. Pharmacy residency programs should provide informatics training to ensure residents' success in optimal practice models.

C14. Advanced training in pharmacy informatics with residencies and postgraduate education should be expanded.

D. Advancing the use of pharmacy technicians

Beliefs and assumptions

D1. Pharmacy technicians who have appropriate education, training, and credentials could be used much more extensively to free pharmacists from drug distribution activities.

D2. Assigning medication distribution tasks to pharmacy technicians would make it possible to redeploy pharmacists' time to drug therapy management activites.

D3. *The following tasks can be assigned to pharmacy technicians who have appropriate education and training:*

D3a. Initiation of medication reconciliation, including obtaining and documenting patients' medication information for pharmacists' review.

D3b. Reviewing patient charts to identify medication allergies that require pharmacist follow-up.

D3c. Checking dispensing by other technicians (i.e., "tech-check-tech").

D3d. Compounding routine sterile preparations in conformance with well-documented procedures.

D3e. Dispensing medications with remote video supervision by pharmacists.

D3f. Scheduling outpatient clinic drug therapy management visits.

D3g. Criteria-based screening of medical records to identify patients who may require pharmacist intervention.

D3h. Preparing clinical monitoring information (e.g., International Normalized Ratios) for pharmacist review.

D3i. Inspecting and replenishing medication storage devices.

D3j. Managing controlled substances systems.

D3k. Managing medication assistance programs.

D3l. Conducting aspects of quality-improvement programs.

D3m. Managing pharmacy department information technology systems, including routine management of databases and billing systems.

D3n. Supervising other pharmacy technicians.

Recommendations

D4. ASHP should define a scope of practice, including core competencies, for hospital and health-system pharmacy technicians.

D5. Uniform national standards should apply to the education and training of pharmacy technicians.

D6. To support optimal pharmacy practice models, technicians must be certified by the Pharmacy Technician Certification Board.

D7. By 2015, the Pharmacy Technician Certification Board should require completion of an accredited training program before an individual may take the certification examination.

D8. To support optimal pharmacy practice models, technicians must be licensed by state boards of pharmacy.

D9. All distributive functions that do not require clinical judgment should be assigned to technicians.

D10. Opportunities for technician specialization should be developed.

E. Successful implementation of new pharmacy practice models

Beliefs and assumptions

E1. The staffs of pharmacy departments in hospitals and health systems are looking for guidance on how to most effectively establish an optimal practice model.

E2. Pharmacy departments in hospitals and health systems are looking for guidance from ASHP on how to most effectively establish optimal practice models.

E3. My institution has worked to advance drug therapy management services by pharmacists in the past three years.

E4. *The following are critical components in the implementation of optimal pharmacy practice models:*

E4a. Department of pharmacy administrative leadership.

E4b. Clinical pharmacy leadership.

E4c. Ensuring competence of current pharmacy staff to provide drug therapy management.

E4d. Assignment of pharmacists to patient care units.

E4e. Expansion of pharmacy technician responsibilities.

E4f. Pharmacist electronic access to complete patient-specific data.

E4g. Support from health care executives.

E4h. Support from physicians.

E4i. Support from medical staff leadership.

E4j. Support from nursing leadership.

E4k. Implementation of collaborative practice agreements.

E4l. Establishment of pharmacist provider status under Medicare.

E4m. Training for all pharmacy students on the roles of safety and quality in the medication-use process (through collaboration between hospitals and health systems and colleges of pharmacy).

E4n. Training for all pharmacy students on transitions of care (through collaboration between hospitals and health systems and colleges of pharmacy).

E4o. Increased number of residency-trained pharmacists.

Recommendations

Recommendations B24, B25, C4, and D9 (above) relate to the successful implementation of new pharmacy practice models.

Appendix—Operational definitions used in the original questionnaire

Ambulatory care/outpatient settings: References to ambulatory care or outpatient settings in this survey refer to ambulatory care clinics that are part of the hospital or health system.

Drug therapy management: Multidisciplinary team process for selecting appropriate drug therapies, educating patients, monitoring patients, and continually assessing outcomes of therapy. Pharmacist activities in drug therapy management may include but are not limited to initiating, modifying, and monitoring a patient's drug therapy; ordering and performing laboratory and related tests; assessing patient response to therapy; counseling and educating a patient about medications; and administering medications.

Electronic medical record: A medical record in digital format that provides real-time access to systematic documentation of a patient's medical history and care. Other terms for an EMR include an electronic health record and a clinical data repository. Digital records allow for longitudinal data storage and access and result in more efficient care, improved communication among providers and health plans, and facilitate outcome measurement.

Integrated delivery system: A network of health care providers and organizations which provides or arranges to provide a coordinated continuum of services to a defined population of patients. Services provided by an integrated delivery system can include a fully equipped community or tertiary hospital, home health care and hospice services, pharmacies, primary and specialty outpatient care and surgery, social services, rehabilitation, preventive care, health education and financing, usually using a form of managed care.

Pharmacist: All references to pharmacists in this survey refer to hospital or health-system pharmacists.

Pharmacy practice models: In this survey, pharmacy practice models refer to hospital/health-system based practice models.

Pharmacy technician: An individual who has been trained to assist in pharmacy activities that do not require the judgment of a pharmacist and who performs those activities under the supervision of a licensed pharmacist.