Tech-Check-Tech: Process of the past or essential to the future of pharmacy?

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Disclosures

I have no relevant financial relationships to disclose for this presentation.
Objectives

• Evaluate literature regarding the safety and benefits of tech-check-tech

• Describe state regulations and national pharmacy organization positions on tech-check-tech

• Discuss contemporary tech-check-tech initiatives

• Analyze the future options for tech-check-tech in the state of Maryland
Audience Warm-Up

• Have you heard of tech-check-tech?

• Do you know what tech-check-tech is?

• Are you in support of tech-check-tech?
Tech-Check-Tech (TCT) Defined

“The checking of a pharmacy technician’s order-filling accuracy by another pharmacy technician rather than a pharmacist.”
“Tech-Check-Tech”: A Review of the Evidence on its Safety and Benefits

Adams et al.—
Background and Methods

<table>
<thead>
<tr>
<th><strong>Objective</strong></th>
<th>To review published evidence on state-authorized TCT programs, focusing on safety, pharmacist work hours and clinical activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
<td>Literature review</td>
</tr>
<tr>
<td><strong>Search Strategy</strong></td>
<td>Searched MEDLINE (1948-2010) and International Pharmaceutical Abstracts (1970-2010)</td>
</tr>
<tr>
<td></td>
<td>Utilized National Association of Boards of Pharmacy (NABP) Survey of Pharmacy Law 2009</td>
</tr>
<tr>
<td><strong>Literature Included</strong></td>
<td>15 TCT studies published from 1978-2009</td>
</tr>
<tr>
<td></td>
<td>• 3 same-sample studies for the safety of TCT</td>
</tr>
<tr>
<td></td>
<td>• 8 non same-sample studies for the safety of TCT</td>
</tr>
<tr>
<td></td>
<td>• 4 studies for the benefits of TCT</td>
</tr>
</tbody>
</table>
Adams et al.—Evidence for the **Safety** of TCT

<table>
<thead>
<tr>
<th>Study</th>
<th>Length of study (weeks)</th>
<th>Orders Checked (n)</th>
<th>Accuracy Rate (%)</th>
<th>Error Detection Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Technician</td>
<td>Pharmacist</td>
</tr>
<tr>
<td>Andersen et al.</td>
<td>24</td>
<td>10,600</td>
<td>99.8</td>
<td>99.9</td>
</tr>
<tr>
<td>Stafford</td>
<td>5</td>
<td>15,250</td>
<td>99.9</td>
<td>99.8</td>
</tr>
<tr>
<td>Enderlin et al.</td>
<td>1</td>
<td>8,650</td>
<td>99.0</td>
<td>NR</td>
</tr>
</tbody>
</table>

NR=not reported  *=statistically significant
Adams et al.—
Discussion of the **Safety** of TCT

<table>
<thead>
<tr>
<th>Strengths</th>
<th>• Same-sample studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limitations</td>
<td>• Length of studies</td>
</tr>
<tr>
<td></td>
<td>• Conducted in controlled environments</td>
</tr>
<tr>
<td></td>
<td>• No categorization of non-intercepted errors by type or severity</td>
</tr>
<tr>
<td>Conclusion</td>
<td>• Technicians can accurately perform the “final verification” of unit dose medications</td>
</tr>
<tr>
<td></td>
<td>• Same-sample studies of longer duration that provide error categorization and resource consumption are needed</td>
</tr>
</tbody>
</table>
Adams et al.—
Evidence for the **Benefits** of TCT

<table>
<thead>
<tr>
<th></th>
<th>Pharmacist Time Gained</th>
<th>Activities Implemented/Increased Time Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ambrose et al.</strong></td>
<td>1.0 hour/pharmacist/day</td>
<td>Dosing recommendations and other requests for pharmacotherapy optimization</td>
</tr>
<tr>
<td><strong>Andersen et al.</strong></td>
<td>0.33 hours/pharmacist/day</td>
<td>NR</td>
</tr>
<tr>
<td><strong>McKee</strong></td>
<td>1.2 hours/pharmacist/day</td>
<td>NR</td>
</tr>
<tr>
<td><strong>Woller et al.</strong></td>
<td>NR</td>
<td>Assistance at the prescribing step, review of ADEs, DUEs, TDM, counseling</td>
</tr>
</tbody>
</table>

ADEs=adverse drug events, DUEs=drug utilization evaluations, NR=not reported
TDM=therapeutic drug monitoring
<table>
<thead>
<tr>
<th>Strengths</th>
<th>Limitations</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>First attempt to quantify amount of time gained through the implementation of TCT</td>
<td>All studies relied on pharmacist self-reporting or estimation to report pharmacist time gained</td>
<td>The amount of time gained by pharmacists for non-technical activities varies by institution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Studies analyzing the impact of redeployment of pharmacist time are needed</td>
</tr>
</tbody>
</table>

Adams et al.—Discussion of the **Benefits** of TCT
Legal Regulations and Professional Organizations’ Positions on Tech-Check-Tech
Legal Regulation of TCT

• Technician scope of practice is determined at the state level

• Statute vs. regulations

• Reminder: Board of Pharmacy is the regulatory body that protects the health of the public
National Association of Boards of Pharmacy Position on TCT

• An impartial professional organization that supports the state boards of pharmacy in protecting public health

• Model State Pharmacy Act and Model Rules of the NABP on Certified Pharmacy Technicians:

  “Certified Pharmacy Technicians...may, under the supervision of a Pharmacist, perform certain activities involved in the Practice of Pharmacy...but excluding...dispensing process validation.”
## 2015 Report of the NABP Task Force on the Regulation of Pharmacist Care Services

<table>
<thead>
<tr>
<th>NABP should encourage state boards of pharmacy to expand the scope of activities that pharmacists may delegate to certified pharmacy technicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacists must be given more time and the opportunity to meaningfully communicate with patients and members of their health care team.</td>
</tr>
<tr>
<td>State boards of pharmacy should continue to set practice standards and education requirements for pharmacy technicians for added safeguards.</td>
</tr>
<tr>
<td>The state pharmacy boards should allow pharmacists to delegate more advanced functions such as…tech-check-tech verification.</td>
</tr>
</tbody>
</table>
NABP Survey of Pharmacy Law 2015

- Inpatient TCT allowed
- Inpatient TCT programs require BOP approval
National Association of Boards of Pharmacy Position on TCT

NABP Survey of Pharmacy Law 2015

[Map showing states where Community TCT is allowed and those where programs require BOP approval]

- Community TCT allowed
- Community TCT programs require BOP approval
American Pharmacists Association
Position on TCT

• No official position on TCT
• Directed to a portion of the Policy on Education and Training:

  *APhA reaffirms the 2005/2001/1996 Control of Distribution System policy, which states that APhA supports pharmacists' authority to control the distribution process and personnel involved and the responsibility for all completed medication orders, regardless of practice setting.*
National Association of Chain Drug Stores Position on TCT

- NACDS works to advance the interests and objectives of the chain community pharmacy industry, by fostering its growth and promoting its role as a provider of healthcare services and consumer products
- NACDS-funded TCT projects
  - Currently in 3rd phase of TCT project in Iowa via the Iowa New Practice Model
  - A pilot research program in Wisconsin is being planned
Summary—Legal Regulations and Professional Pharmacy Organizations Positions on TCT

- ASHP has a concrete position supporting TCT, indicating that hospitals and health-systems may be more interested in TCT than other pharmacy interest groups

- NACDS is supportive of TCT in the chain pharmacy setting, and this may be a trend to continue to watch

- NABP’s model pharmacy act may now incorporate TCT, and several state boards of pharmacy allow the practice to some extent
Contemporary Tech-Check-Tech Initiatives
Contemporary TCT Initiatives—Project Components

Petition and approval of Board of Pharmacy

Training and competency assessment for pharmacy technicians

Implementation of new work processes and project assessment
Changes in Pharmacy Practice Due to a Change in Prescription Refill Processing: The Iowa New Practice Model

## Contemporary TCT Initiatives—Background

<table>
<thead>
<tr>
<th><strong>Objective</strong></th>
<th>To evaluate the impact of pharmacy practice after implementation of TCT for <strong>refill</strong> prescriptions in retail pharmacies</th>
</tr>
</thead>
</table>
| **Setting**   | 7 retail pharmacies in Iowa  
|               | Involved in the Iowa Pharmacy Association and interested in practice improvement initiatives  
|               | Currently providing or prepared to provide patient care services |
| **Available Technology** | Varied by retail pharmacy, some had automated dispensing machines |
Contemporary TCT Initiatives—Project Components

### Petition and approval of Board of Pharmacy

- Requested approval for a pilot
- 1 year delay while BOP received authorization to allow pilots
- Demonstration project approved by the Board of Pharmacy
### Training and competency assessment for pharmacy technicians

#### Technician Eligibility

- Registered with the Iowa Board of Pharmacy
- Certified (Pharmacy Technician Certification Board) pharmacy technician
- At least 1,000 hours prior technician work experience and successful completion of location-specific training
- If no prior technician work experience, 2,000 hours at the pharmacy and successful completion of location-specific training

#### Technician Training

- IPA/CEI Tech-Check-Tech modules; must obtain 80% to pass

#### Competency Assessment

- Technicians are double-checked by a pharmacist for 1 or more weeks
- Error rate compared to pharmacist baseline error rate: if within 1 standard deviation, technician may continue TCT without double-check
- Measurements repeated monthly and compared to baseline every 3 months
## Implement new work processes and project assessment

### New Work Processes
- Qualified and trained pharmacy technicians performed tech-check-tech on refill prescriptions
- Pharmacists shifted to non-dispensing activities during time that would have been spent checking refill prescriptions

### Project Assessment

<table>
<thead>
<tr>
<th>Outcomes of Interest</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispensing errors</td>
<td>No change in potential patient safety, administrative, or total error rates</td>
</tr>
<tr>
<td>Pharmacist workday composition</td>
<td>Statistically significant decrease in time spent dispensing</td>
</tr>
<tr>
<td></td>
<td>Statistically significant increase in time spent in patient care</td>
</tr>
<tr>
<td>Patient care activities</td>
<td>Non-statistically significant increases in reimbursed or non-reimbursed activities</td>
</tr>
<tr>
<td>Workplace satisfaction</td>
<td>No change in six measures of satisfaction</td>
</tr>
</tbody>
</table>
Experience with a “Tech-Check-Tech” Program in an Academic Medical Center

### Objective
- To implement TCT to support unit dose drug distribution at an academic medical center

### Setting
- The University of Wisconsin Hospitals and Clinics, a 493 bed academic medical center
- 24-hour cart fill and centralized distribution process
- 646 unit dose dispenses requiring manual check/day

### Available Technology
- Automated dispensing cabinets (ADCs)
- Barcode-assisted medication administration (BCMA)
- Medication robot
- Medication carousel
Contemporary TCT Initiatives—Project Components

Petition and approval of Board of Pharmacy

- UWHC requests variance from Wisconsin Board of Pharmacy (BOP)
- BOP requires several safeguards be added to UWHC proposal
- BOP approval 7 months after request
- Annual system reports required by BOP
## Training and competency assessment for pharmacy technicians

<table>
<thead>
<tr>
<th>Technician Eligibility</th>
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<tbody>
<tr>
<td>• Full-time pharmacy technician with at least 6 months experience</td>
</tr>
<tr>
<td>• Certified (Pharmacy Technician Certification Board) pharmacy technician</td>
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</table>

<table>
<thead>
<tr>
<th>Technician Training</th>
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<tbody>
<tr>
<td>• Self-learning packet</td>
</tr>
<tr>
<td>• 90% or greater score on written examination</td>
</tr>
<tr>
<td>• Minimum of 24 hours of practical training with pharmacist oversight</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Competency Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 2500+ consecutive doses checked during at least five separate audits over a minimum of five separate days</td>
</tr>
<tr>
<td>• Pharmacist introduces errors at a minimum rate of 0.2%</td>
</tr>
<tr>
<td>• 99.8% accuracy rate required</td>
</tr>
<tr>
<td>• Validated Pharmacist Assistant (VPHA) upon successful completion of training and competency assessment</td>
</tr>
</tbody>
</table>
## Contemporary TCT Initiatives—Project Components

**Implement new work processes and project assessment**

<table>
<thead>
<tr>
<th>New Work Processes</th>
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<tbody>
<tr>
<td>• VPHAs check medication cart refills</td>
</tr>
<tr>
<td>• Pharmacist must provide double-check 10% of TCT doses</td>
</tr>
<tr>
<td>• BOP Waiver required one additional check by licensed health care professional prior to administration</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Project Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcomes of Interest</strong></td>
</tr>
<tr>
<td>• Assess quantity and quality of technician performance</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>• Clinical pharmacist time shifted from product checking to clinical activities</td>
</tr>
<tr>
<td>• Pharmacist satisfaction with TCT</td>
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</tbody>
</table>
Common Elements of Contemporary TCT Initiatives

- Limited to institutional settings…but this is changing!
- Advanced education and training requirements for pharmacy technicians
- Ongoing quality assurance
- Pharmacist redeployment
Possible Barriers to Contemporary TCT Initiatives

- Resources
- Resistance to change
- Questions about liability
- Pharmacists’ level of comfort
- Technicians’ level of comfort
Possible Barriers to Contemporary TCT Initiatives

RESOURCES
Possible Barriers to Contemporary TCT Initiatives

Resistance to Change

CHANGE?!

Well, now I know what we're up against...
Possible Barriers to Contemporary TCT Initiatives

Liability
Possible Barriers to Contemporary TCT Initiatives

Level of Comfort
The Future of Tech-Check-Tech: Focus on Maryland
10.34.10.04 Competence

A pharmacy technician, pharmacy intern, or a pharmacist shall:

• Maintain knowledge of the current pharmacy and drug laws and health and sanitation laws relevant to the practice of pharmacy

• Provide a pharmaceutical service only within the scope of the pharmacy technician’s, pharmacy intern’s, or pharmacist’s training and education

10.34.34.03 Delegated Pharmacy Acts

A pharmacy technician may not:

• Provide the final verification for accuracy, validity, completeness, or appropriateness of a filled prescription or medication order

• Make decisions that require a pharmacist’s professional judgment
## Future of TCT: The Project Components Framework

### Petition and approval of board of pharmacy
- Collaborate with MSHP and/or MPhA to explore and advocate for tech-check-tech in Maryland
- Statute changes or regulation changes?
- Should there be a call for pilot projects conducted in Maryland prior to BOP approval?

### Training and competency assessment for pharmacy technicians
- What changes would need to be made to technician training programs to incorporate tech-check-tech?
- What would the minimum requirements be in Maryland?

### Implement new work processes and project assessment
- Are additional quality and safety outcomes of tech-check-tech needed or desired?
- Will tech-check-tech continue to expand to first dose checks?
Conclusion

• The practice of tech-check-tech has been found to be safe and to provide additional time for pharmacist clinical/patient care activities.

• Tech-check-tech is not widely practiced throughout the United States and the pharmacy profession does not have a uniform stance on the issue.

• State regulations set by the Board of Pharmacy ultimately allow or prohibit tech-check-tech in each state.
• Tech-check-tech may be a feasible solution to the demand/desire to expand pharmacist clinical activities, but program implementation and sustainability require resources that may not be readily available.

• There is renewed interest in tech-check-tech in Maryland and we can learn from states/institutions who have already successfully implemented it.
The Question!

Would you support implementation of tech-check-tech at your place of employment?
Knowledge Check

According to Adams et al., the TCT literature published from 1978-2009 suggests that:

A. Technicians are inferior to pharmacists in their ability to accurately provide final verification of the medication product.

B. In institutions that have implemented or piloted TCT, there has been no gain in hours available for pharmacists to provide clinical services.

C. Technicians have the ability to provide final verification of the medication product at an accuracy rate that matches or exceeds that of a pharmacist.

D. None of the above.
Knowledge Check

Which of the following statements is true?

A. All state Boards of Pharmacy allow tech-check-tech since their purpose is to promote the pharmacy profession.

B. Most states have regulations that specifically address the permissibility of tech-check-tech.

C. All pharmacy organizations have an official position on the practice of tech-check-tech and all are supportive of the practice.

D. ASHP supports the practice of tech-check-tech and the NABP Model Pharmacy Practice Act may soon be updated to do so as well.
Knowledge Check

What are the components for successful implementation of a TCT program as demonstrated by contemporary TCT initiatives?

A. Request approval from BOP → Training/competency assessment of pharmacy technicians → Implement process and assess
B. Research successful programs → Implement process and assess → Request approval from BOP
C. Training/competency assessment of pharmacy technicians → Implement process and assess → Expand TCT to first-dose medications → Request approval from BOP
D. There are no pre-defined components. Do what works for your institution.
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• Meghan Swarthout, PharmD, MBA, BCPS
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