

A comprehensive annotated reminder tool increased appropriate screening in primary care

Shannon KC, Sinacore JM, Bennett SG, et al. Improving delivery of preventive health care with the comprehensive annotated reminder tool (CART). *J Fam Pract.* 2001 Sep;50:767-71.

QUESTION

Does a comprehensive annotated reminder tool (CART) prompt appropriate application of preventive service recommendations by resident physicians?

DESIGN

1-year randomized {allocation concealed*}†, blinded (outcome assessor),* controlled trial.

SETTING

Community hospital clinic in suburban Chicago.

PARTICIPANTS

31 resident physicians who cared for patients ≥ 19 years of age at the clinic.

INTERVENTION

Residents were allocated to the CART (*n* = 15) or to a control group that used blank history and physical examination forms (*n* = 16). The CART consisted of forms that documented the history and physical examination by integrating age-appropriate screening questions, age-specific reminders, and test frequency recommendations. The forms were provided for 3 age cohorts, each with guidelines for preventive interventions.

MAIN OUTCOME MEASURES

Appropriateness of preventive service recommendations: complete history and physical examination of new patients within the first 3 visits and appropriate screening. Assessments were done by blinded chart reviews of randomly selected new patients (608 charts were reviewed). Physician knowledge of the U.S. Preventive Services Task Force recommendations was also assessed.

MAIN RESULTS

Recommendations were organized into 4 categories: history, physical examination and laboratory investigations, counseling, and prophylaxis. 20 (of 49) recommendations were analyzed. During the intervention phase, the proportion of appropriately screened patients in the CART group increased by a mean of 45%, 21%, and 15% for the recommendations in the history, examination and laboratory investigations, and counseling categories, respectively. In the control group, the proportion of appropriately screened patients did not appreciably change (Table). During the postintervention phase, the proportion of appropriately screened patients returned to baseline levels in the CART group. Both

groups had higher post-test knowledge scores, showing no effect of the CART.

CONCLUSION

A comprehensive annotated reminder tool (CART) made available to resident physicians increased the proportion of patients receiving appropriate screening and preventive services, but screening behavior returned to baseline levels after removal of the CART.

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For correspondence: Dr. K.C. Shannon, Dartmouth College, Hanover, NH, USA. E-mail Kevin.C.Shannon@Dartmouth.edu. ■

*See Glossary.

†Information provided by author.

Comprehensive annotated reminder tool (CART) vs no CART for appropriate screening during the intervention period‡

Screening service	CART	No CART	P value
History			
HIV	77%	30%	< 0.001
Depression	61%	16%	< 0.001
Skin cancer	55%	9.9%	< 0.001
Substance abuse	98%	85%	< 0.001
Domestic violence§	28%	0%	< 0.001
Examination and laboratory tests			
Breast§	99%	77%	< 0.001
Cholesterol	92%	81%	0.02
Papanicolaou smear§	97%	81%	< 0.001
Stool occult blood	75%	75%	Not significant
Counseling			
Smoking	89%	75%	0.01
Injury prevention	14%	0.9%	< 0.001
Exercise	31%	71%	0.015
Prophylaxis			
Tetanus and diphtheria booster	29%	28%	0.76‡

‡Numbers calculated from data provided by author. CART = comprehensive annotated reminder tool.

§Screening only included women.

COMMENTARY

Despite substantial evidence documenting the benefits of preventive health care, physicians frequently underutilize preventive health care services (1). Computerized reminder systems have been shown to improve physician performance (2), but the cost to implement and maintain an electronic medical record or other computer-based technology is a barrier for many practicing physicians.

The trial by Shannon and colleagues showed that a CART, embedded in a paper-based comprehensive history and physical form, increased the delivery of preventive health care by family practice residents.

Despite increased knowledge about preventive health care interventions among the study- and control-group participants, only the residents using the reminder tool showed improved performance. Performance reverted to baseline in the intervention group when the reminder tool was no longer provided. This finding emphasizes that

physician knowledge simply is not enough to sustain behavioral change. Techniques to improve processes in the effective delivery of health care are required if physicians are to consistently provide needed care to patients.

The study showed improved performance by resident physicians. Whether the CART could improve physician performance in a typical time-pressured clinical practice environment is unclear. Reproducing the findings of this study among practicing physicians would be useful.

*Robert Gluckman, MD
Providence-St. Vincent Medical Center
Portland, Oregon, USA*

References

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