Evidence-based periodic health examination of adults

Memory aid for primary care physicians

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ABSTRACT

PROBLEM ADDRESSED There is currently no peer-reviewed evidence-based memory aid that incorporates recommended prevention guidelines to direct family physicians during periodic health examination of adults.

OBJECTIVE OF PROGRAM To devise a memory aid to guide primary care physicians during periodic health examination of adults that incorporates the most current evidence-based recommendations of the Canadian Task Force on Preventive Health Care and of the United States Preventive Services Task Force.

PROGRAM DESCRIPTION This memory aid is a two-page easy-to-use form that lists evidence-based maneuvers for adults aged 21 to 64 that should be carried out during periodic health examinations. This article describes the form and discusses the evidence currently available for the maneuvers mentioned on the form. To validate the memory aid, results of qualitative assessment in one academic and 15 community settings are presented.

CONCLUSION This user-friendly memory aid was developed to provide primary care physicians with rigorously evaluated guidelines in an accessible format for use during periodic health examination of adults.

RÉSUMÉ

PROBLÈME À L’ÉTUDE Il n’existe présentement aucun aide-mémoire fondé sur des preuves ou sur des articles ayant fait l’objet d’une évaluation externe qui fournisse au médecin de famille des directives éprouvées sur l’examen médical périodique de l’adulte.

OBJECTIF DU PROGRAMME Créer à l’intention des médecins de première ligne un aide-mémoire pour l’examen médical périodique de l’adulte renfermant les plus récentes recommandations fondées sur des preuves émises par le Groupe de travail canadien sur les soins de santé préventifs et par le United States Preventive Services Task Force.


CONCLUSION Cet aide-mémoire convivial a été créé pour procurer au médecin de première ligne des directives rigoureusement choisies et facilement disponibles devant le guider dans l’examen de santé périodique de l’adulte.
The goal of periodic health examinations of asymptomatic adults is to prevent morbidity and mortality by identifying modifiable risk factors and early signs of treatable disease. In 1980, the Canadian Task Force on the Periodic Health Examination produced their first evidence-based clinical practice guidelines. The task force was renamed the Canadian Task Force on Preventive Health Care (CTFPHC) in 1984. Studies suggest that the task force’s recommendations are not being fully implemented into everyday primary care practice. Undergraduate and postgraduate medical training programs advocate using the best available evidence in teaching and practising medicine. The intention is that the habit of using available evidence will continue into clinical practice. Currently, the approach to periodic health examinations varies from physician to physician.

Evidence-based recommendations produced by the CTFPHC and the United States Preventive Services Task Force (USPSTF) have been rigorously evaluated with respect to validity, generalizability, and measurability in regard to primary health care. Although thorough, these recommendations exist in formats that are difficult for physicians to use during patient encounters.

Physicians are aware of the rationale for following evidence-based recommendations, and most are likely to attempt to incorporate them into practice. Although busy physicians might recall and do some preventive health care maneuvers during patient visits without reminders, as the number of items increases, they are less likely to remember them all. Studies have shown that chart reminders based on age- and sex-specific guidelines for preventive procedures improve performance during examinations and that physicians are more likely to implement CTFPHC guidelines if they have attended a workshop on them.

To review the literature thoroughly, we searched MEDLINE using the search terms “evidence-based,” “office tool,” “preventative,” “periodic health examination,” “annual health examination,” and “physical health examination.”

Objective of program
The program aimed to create an efficient, easy-to-use memory aid that would remind family physicians of evidence-based maneuvers to use during periodic health examination of adults aged 21 to 64. Such an aid would offer family physicians rigorously evaluated task force recommendations in a format that would be easy to use in everyday practice.

Components of the memory aid
The format of this memory aid (Figure 1) addresses evidence-based maneuvers that have been shown to be effective in prevention and detection of disease and potential sources of injury. Recommendations used were those reviewed and published by the CTFPHC and the USPSTF. Grades of evidence used by the CTFPHC are listed in Table 1.

Included were all maneuvers with good evidence (grade A, printed in bold type) and fair evidence (grade B, printed in italics) that were relevant for examination of those 21 to 64 years old. Maneuvers for which evidence was conflicting (grade C) or insufficient for making a recommendation (grade I) are printed in plain text. The decision to include a recommendation rated grade C or grade I depended on whether it was cost-effective and available (eg, homocysteine testing was excluded), whether emerging evidence would likely change the rating (eg, prostate-specific antigen testing, diabetes screening), whether it would benefit individual patients (eg, screening for suicide risk), and whether the maneuver could be performed easily in the office (eg, skin examination for moles).

In many instances, both Canadian and American task forces made recommendations on the same maneuver. If there was a conflict between the two, the Canadian recommendation was selected unless the American recommendation was more up-to-date. The exception to this was the recommendation on breast cancer screening. The USPSTF recommendation, although dated 2002, has inconclusive evidence for recommending mammography for women aged 40 to 49, even though its broad statement classifies it as a grade B recommendation. Despite being less current, the Canadian recommendation to offer mammography to women aged 50 to 69 at average risk of breast cancer was selected unless the woman was at high risk of breast cancer.

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### Periodic Adult Health Maintenance Record

**For Men Aged 21 - 64**

**Created by:** Dr. Stephen Milone and Dr. Stephanie Lopes Milone

**Date:**

<table>
<thead>
<tr>
<th>CURRENT PATIENT CONCERNS</th>
<th>CURRENT MEDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>REVIEW OF SYSTEMS (ROS)</th>
<th>SOCIAL HISTORY</th>
<th>PAST MEDICAL HISTORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Screen for gingivitis: Do your gums bleed while brushing?</td>
<td>Smoking: ____ pack-yrs</td>
<td>Cardiac Risk Factors</td>
</tr>
<tr>
<td>- Assess for medical impairment for driving:</td>
<td>- Thinking of Quitting? Y / N</td>
<td>- Age&lt;45</td>
</tr>
<tr>
<td>- Decreased Vision</td>
<td>- Alcohol Intake: (Max: 2-9, 10-14)</td>
<td>- Hypertension</td>
</tr>
<tr>
<td>- Decreased Hearing</td>
<td>- drinks/week</td>
<td>- Hyperlipidemia</td>
</tr>
<tr>
<td>- Decreased Flexibility</td>
<td>- If &gt; Max, do CAGE : /4</td>
<td>- Diabetes Mellitus</td>
</tr>
<tr>
<td>- Slow information processing</td>
<td>- Exercise:</td>
<td>- Smoker</td>
</tr>
<tr>
<td><strong>O</strong> consider driving assessment if +ve</td>
<td>Drug Use: Y / N</td>
<td>Prior exposure to chicken pox: Y / N</td>
</tr>
<tr>
<td>- Screen for depression †</td>
<td>- Assess for STD if high risk †</td>
<td>- New immigrant from:</td>
</tr>
<tr>
<td>- Screen for Suicide risk (0) †</td>
<td>- Current Employment:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Assess for noise exposure</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

**ADDITIONAL COMMENTS**

<table>
<thead>
<tr>
<th>PHYSICAL EXAMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure:</td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>- Skin exam for moles:</td>
</tr>
<tr>
<td>- If high risk †</td>
</tr>
<tr>
<td>- General population (0)</td>
</tr>
<tr>
<td>- Oral cavity exam annually for smokers, ex-smokers, and alcoholics</td>
</tr>
</tbody>
</table>

**ADDITIONAL COMMENTS**

**References:** Recommendations are from the Canadian Task Force ([http://www.cfpc.ca/cfp](http://www.cfpc.ca/cfp)) with the exception of the following recommendations which are from the United States Preventative Health Task Force ([http://www.ahrq.gov/clinic/uspstfix.htm](http://www.ahrq.gov/clinic/uspstfix.htm)): Aspirin for prophylaxis against cardiovascular events, screening for hypertension, physical activity counseling, screening for obesity, as well as screening for cervical, prostate, and skin cancers. Last Updated April 2005.
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**COUNSELING ISSUES**

- **Smokers:**
  - Smoking cessation counseling
  - Recommend eat green leafy vegetables †
- **Dental Advice:**
  - Brushing and flossing of teeth
  - Annual professional scaling and plaque removal
- **Sun exposure counseling (I)**
- **Lifestyle Issues:**
  - Dietary counseling:
    - If CV risk factors
  - Recommend regular physical activity (I) †
  - Recommend weight reduction if BMI>30 (I)
  - Advise against alcohol abuse if CAGE +ve †
  - Education re: Gonorrhea prevention if at risk †
  - Dietician referral if at risk †

**INVESTIGATIONS AND TREATMENT**

- **Screening for Colon Cancer:**
  - Fecal Occult Blood test q 1-2 years for adults >50
  - Flexible Sigmoidoscopy q 1-2 years for adults >50
- **Colonoscopy if high risk †**
- **DEXA scan q 1-2 years if 1 Major or 2 Minor risk factors for osteoporosis †**
- **TB Skin test if high risk †**
- **HIV testing:**
  - If high risk †
  - General population
- **Glucose Fasting**
  - Age >40, q 3 years.
  - If risk factors for Type-II Diabetes, q 1 year†
- **Screen for nutritional deficiency if at risk †**
  - Serum CBC, B12, Albumin, Iron
- **Fasting lipid profile, Age >40 †**
  - If cardiac risk factors
  - If no cardiac risk factors
- **PSA testing (I)**
  - Age 50-70 if average risk
  - Age > 45 if increased risk †

**IMMUNIZATIONS**

- **Pneumonia vaccination:**
  - If at risk †
  - Age <55 and independent
- **Varicella vaccination if no history of chicken pox infection**
- **Influenza vaccination prior to each winter flu season**

**AS INDICATED BY HISTORY AND PHYSICAL EXAM**

- **Treatment of Hypertension:**
  - If Diastolic BP > 90
  - If Systolic BP > 140
  - Treatment of hyperlipidemia †
  - Aspirin to prevent cardiovascular events
  - If high risk for coronary heart disease
  - If asymptomatic, average CV risk
  - Supplemental Vitamin D
    - 800 IU/day, Age >50
  - Dietary/Supplemental Calcium
    - 1000 mg/d, Age 19-50
  - 1500 mg/d, Age>50

**SMOKERS**

- Nicotine replacement therapy
- Referral smoking cessation program

**SUMMARY OF PROPOSED TREATMENT, FOLLOW UP PLANS, OTHER COMMENTS**

**DATE ___________________________**  **SIGNATURE______________________________**

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**References:**

All recommendations are from the United States Preventive Health Task Force (http://www.ahrq.gov/clinic/uspstfix.htm) with the exception of the following recommendations which are from the United States Preventive Health Task Force (http://www.ahrq.gov/clinic/uspstfix.htm): Aspirin for prophylaxis against cardiovascular events, screening for hypertension, physical activity counseling, screening for obesity, as well as screening for cervical, prostate, and skin cancers. Last Updated April 2005.
breast cancer was used. Recommendations from the USPSTF included in this memory aid were use of acetylsalicylic acid for prophylaxis against cardiovascular events; screening for hypertension; counseling about physical activity; screening for obesity; and screening for cervical, prostate, and skin cancer.

The form is divided into seven sections: Current Patient Concerns and Current Medications, Review of Systems, Social History, Past Medical History, and Physical Examination. These items and boxes that can be checked to indicate that a full functional inquiry and physical examination have been completed were included so that the information in the memory aid would meet provincial billing requirements for complete health assessments. Sections on Counseling Issues and Investigations and Treatment are also included to address other recommendations supported by evidence.

To keep the form user-friendly, space is provided for additional comments. Some maneuvers that require further explanation (eg, frequency of cervical cancer screening) are marked with a symbol (†) and described on page three of the memory aid. For reference, explanations on page three also show the grade of recommendation for each maneuver.

**Current patient concerns and current medications.** Although this section is not based on evidence, it is intended to ensure a patient-centred approach. Patients are encouraged to voice their specific health concerns. As well, a review of their updated list of medications can be summarized in the space provided in this section.

**Review of systems.** There are few evidence-based maneuvers in this section. The assessment of medical impairment for driving is included since screening questions for this assessment (ie, inquiries about vision and hearing impairment) are typically included in a review of systems (grade C). Inquiring about recent fractures is intended to screen for increased risk of osteoporosis (grade B). There is also a box that can be checked to indicate that a full functional inquiry was done beyond the recommended maneuvers. There is additional space for documenting symptoms.

**Social history.** The evidence supports counseling about smoking cessation, alcohol intake, and current level of exercise, so inquiry into these matters is included in this section. Asking about drug use is intended to screen for high-risk behaviour (grade C) and might help physicians identify other comorbidity and high-risk addictive behaviour. Inquiring about sexual history is intended to screen for risk of contracting sexually transmitted infections. The intention is to guide decisions on further investigations. Asking about current employment is intended to screen for preventable work-related injuries, specifically noise-induced hearing loss (grade C).

**Past medical history.** Cardiac risk factors should be reviewed and documented since there is evidence supporting prevention and treatment of cardiac-related diseases. Prior exposure to chickenpox of all adults and current status of immunization against rubella of all women capable of becoming pregnant should be documented to identify patients who require vaccinations. Inquiring about recent immigration is included to screen for HIV and tuberculosis in patients from countries known to have a high prevalence of these diseases.

**Family history.** Specific inquiries into family history of cardiac disease, malignancies, and psychiatric
disorders are included to help direct appropriate physical examination, investigations, and decisions about treatment.

**Physical examination.** Page three of the form gives explanations of the maneuvers in this section. The right-hand column provides space for documenting findings of physical examinations that are pertinent to individual patients. There is also a box that can be checked to indicate that a full physical was completed, and there is additional space for documenting relevant findings.

**Counseling**

This section is subdivided into categories to assist physicians in selecting items that are relevant for individual patients. Further details of specific recommendations in the Counseling section are given on page three of the form.

**Investigations and treatment**

This section contains a checklist of items to be ordered or prescribed based on information gathered from the previous sections or as indicated by a patient’s age, sex, and smoking status. It is divided into four categories: Investigations, Treatment, Immunizations, and Other investigations. There is also a specific subsection for smokers. Decisions on treatment of hypertension should be based on established Canadian guidelines. The section on immunizations reflects the most current recommendations. Screening for hyperlipidemia using a fasting lipid profile is a grade B recommendation when there are cardiac risk factors and grade C in all other cases. As yet, no evidence indicates the optimal frequency of lipid screening. The CTFPHC, the USPSTF, and the Canadian Guidelines for the Management and Treatment of Dyslipidemias suggest that screening should be carried out every 5 years if patients have no cardiac risk factors and every 1 to 2 years if patients develop cardiac risk factors.

To determine the frequency of diabetes screening, we referred to the most current clinical practice guidelines. These recommendations come from a consensus statement based on expert opinion because no long-term data currently support particular screening practices for type 2 diabetes. Despite only a consensus grading, we included screening with fasting glucose measurements because of the increasing prevalence and morbidity of type 2 diabetes in our society and because we anticipate that new evidence will likely support more aggressive diabetes screening. Space is available on the right-hand side of this section for documenting other treatments and investigations that are indicated by individual patient encounters but not supported by evidence.

**Summary and plan**

Space is provided for final comments and follow-up plans.

**Evaluation**

The original draft of this memory aid was evaluated at the Hotel Dieu Family Medicine Centre at Queen’s University in Kingston, Ont, and at several community practices in the Kingston area. During a 1-month trial, this form replaced the standard annual health examination form previously used at the academic centre and was used twice by each of 15 physicians in community practices. A feedback sheet was attached to the form for comments and suggestions.

More than 87% of respondents made positive remarks about the memory aid, stating that it was “useful” and helped annual health examinations to be “streamlined” and “efficient.” Common suggestions included having separate forms for men and women, including more space for comments, creating a version for electronic medical records, and providing further clarification of specific recommendations. Several respondents asked how a patient-centred approach could be combined with using the memory aid.

As a result of the useful feedback, many changes were made to the format and specific recommendations clarified. Based on the positive responses, the academic centre has endorsed use of this memory aid by residents and attending staff for all annual health examinations of adults aged 21 to 64. In addition, most of the community physicians found the form innovative and useful, and more than 65% said they would like to continue using the memory.
aid. Community physicians less likely to incorporate the memory aid into practice were those nearing retirement and those who preferred to wait for a version suitable for electronic medical records.

Discussion

Our MEDLINE search failed to identify any published, peer-reviewed office memory aids for use during periodic health examination of adults that incorporated recommended guidelines for history, physical examination, counseling, and treatment. Charts and tables were available, however, on both the Canadian and American task force websites\(^{6,7}\) and on the American Academy of Family Physicians’ website.\(^{19}\) These charts and tables contain mostly summaries of recommendations and are presented as lists rather than in a format that could be used during an annual health examination.

Two preventive health checklist forms were identified.\(^{20,21}\) One of these screening tools had not been validated in a trial, and because the authors chose to focus on creating a summary sheet that would withstand the scrutiny of a provincial chart audit, it lacked many recommended evidence-based maneuvers.\(^{20}\) Although both forms had some similarities to our memory aid, their formats were different. Both included only CTFPHE recommendations, many of which are out-of-date compared with some USPSTF recommendations.

One limitation of our memory aid is that, because evidence and recommendations are continually evolving, it must be updated periodically. To indicate how current our form’s content is, we have indicated the latest revision date at the foot of each page. The process of reviewing new evidence in order to update our memory aid will occur only if we can obtain additional research funding. We hope to obtain the intellectual property rights to the memory aid to ensure its authenticity and the consistency of future updates.

Some maneuvers are often included in clinical encounters but are not, and might never be, studied using high-quality, randomized controlled trials. Good clinical evidence for these maneuvers might be impossible, impractical, or too expensive to obtain. Hence, it might be difficult to develop grade A or B recommendations for maneuvers that are routinely included in many settings. Therefore, physicians must continue to rely on their clinical judgment for including or excluding interventions during individual patient encounters. Our memory aid was not created to replace clinical judgment but to assist physicians in recalling recommended evidence-based maneuvers.

The most common criticism of the memory aid pertained to the lack of space in certain sections and the feeling of going through a checklist rather than providing patient-centred care. To address the lack of space, we hope in the future to incorporate this memory aid into a format compatible with electronic medical records. In an electronic format, space can be added and tailored to fit physicians’ needs. With respect to the second issue, we have included a section at the beginning of the form suggesting that physicians discuss patients’ primary health concerns first. We hope this will encourage a patient-centred approach to periodic health examinations so that patients do not feel their physicians have their own agenda or checklist to get through. If time becomes short after addressing patients’ concerns, the maneuvers suggested in other sections of the memory aid can be completed during future visits.

As with all guidelines, the recommendations in the memory aid reflect the best understanding at the time of publication. They should be followed, however, with the understanding that ongoing research will likely result in new knowledge and updated recommendations.

Conclusion

This memory aid was devised to incorporate evidence-based recommendations from the CTFPHE and the USPSTF into a preventive care form. The intention was to provide a user-friendly tool for primary care physicians that incorporates rigorously evaluated guidelines in a format that is accessible during periodic health examinations.

Acknowledgment

We thank Dr Mike Sylvester for supervising this project and giving us support and advice along the way and the Department of Family Medicine at Queen’s University
for their positive feedback and continuing support for this project.

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References

EDITOR’S KEY POINTS
• This project’s goal was to develop an evidence-based, user-friendly memory aid to guide family doctors during annual health examinations. Suggested maneuvers are based on the latest guidelines of the Canadian and American task forces on preventive health care.
• In general, recommendations were based on the best available evidence (grade A or B), but when evidence was grade C or I, recommendations were based on the potential benefit to individual patients and the availability of tests.
• When there was a conflict between Canadian and American guidelines, Canadian ones were chosen, unless the American ones were more recent. All items required to satisfy provincial billing requirements were included.
• The form was tested in an academic and several community practices and, in general, was found to be well accepted.

POINTS DE REPÈRE DU RÉDACTEUR
• Ce programme avait pour but de développer un aide-mémoire convivial fondé sur des données probantes devant guider le médecin de famille lors de l’examen médical annuel. Les manoeuvres suggérées provenaient des plus récentes directives des groupes de travail canadiens et américains sur les soins de santé préventifs.
• La plupart des recommandations reposaient sur les meilleures preuves disponibles (niveau A ou B); lorsque les preuves étaient de niveau C ou I, l’inclusion des recommandations dépendait des avantages potentiels pour le patient et de la disponibilité des tests.
• En cas de désaccord entre les directives canadiennes et américaines, on choisissait les canadiennes, sauf si les américaines étaient plus récentes. Tous les éléments découlant des exigences de facturation des provinces étaient inclus.
• L’aide-mémoire a été testé dans un milieu de pratique académique et dans plusieurs établissement de médecine communautaires; il a été généralement bien accueilli.