eCHAT: Screening & intervening for mental health & lifestyle issues

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Background

- Many people’s lifestyle behaviours impact on their health
- It is assumed that early detection & intervention likely to have substantial long-term health gains
- Few validated tools for lifestyle & mental health risk factors in primary care
Background

- 2002: Identified need for brief case-finding tools
- GPs have time restraints in systematically exploring these issues when patients consult for other reasons
- Patients may feel disquiet when asked about specific “bad” behaviours in isolation
- Embedded questions less threatening
CHAT: Case-finding & ‘Help’ Assessment Tool

Lifestyle & mental health screening assessment tool for use in primary care

- Smoking
- Alcohol misuse
- Other drug misuse
- Problem gambling
- Depression
- Anxiety
- Exposure to abuse
- Anger control
- Physical inactivity
- (Issues around eating)
Evidence base over past 10 years

- Development
- Evaluation, feasibility, acceptability
- Assessment with Māori, Pacific, Asian
- Co-morbidities eg gamblers likely to smoke, drink, be depressed etc

Goodyear-Smith et al, BMC Fam Pract, 2006; 7:25
Goodyear-Smith et al NZ Med J, 2005, 118 (1212)
Goodyear-Smith et al NZ Fam Phys 2004, 31 (2): 84-9
Evaluation of CHAT tool

- Initial study assessed acceptability of tool
- Participants: >2,500 consecutive patients from
  - 20 randomly selected urban GPs
  - 20 randomly selected urban & rural practice nurses
  - 11 rural GPs (50/practitioner)
Evaluation results

- Patients wanting help today (0.2 to 7%) not overwhelming
- Prioritise issue for help
- Well accepted by patients, objections to specific questions <1%
- Compare: 7-52% of women patients object to being screened for partner abuse
- Drs & nurses would use tool once available

Use with different ethnicities

- High acceptability with Maori & Pacific patients
  

- Asian language students have significant lifestyle-related concerns & want help
  
  *Goodyear-Smith et al NZ Fam Phys 2004. 31 (2): 84-9*
Validation studies

- Conducted according to STARD statement for diagnostic tests
- **Setting:** Primary care practices in Auckland
- **Participants:** 1000 consecutive adult patients completed CHAT & composite reference standard
- **Analysis:** Sensitivities, specificities & likelihood ratios

<table>
<thead>
<tr>
<th>Diagnostic Category</th>
<th>Case Prevalence</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>LR + test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine dependency</td>
<td>14.7%</td>
<td>89</td>
<td>93</td>
<td>13</td>
</tr>
<tr>
<td>Problem drinking</td>
<td>12.0%</td>
<td>81</td>
<td>86</td>
<td>6</td>
</tr>
<tr>
<td>Drug misuse</td>
<td>3.0%</td>
<td>45</td>
<td>97</td>
<td>16</td>
</tr>
<tr>
<td>Problem gambling</td>
<td>1.8%</td>
<td>88</td>
<td>97</td>
<td>30</td>
</tr>
<tr>
<td>Major depression</td>
<td>5.3%</td>
<td>96</td>
<td>69</td>
<td>3</td>
</tr>
<tr>
<td>Anxiety</td>
<td>11.0%</td>
<td>88</td>
<td>74</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Case prevalence</td>
<td>Sensitivity</td>
<td>Specificity</td>
<td>LR+</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------</td>
<td>-------------</td>
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<td>-----</td>
</tr>
<tr>
<td>Verbal abuse</td>
<td>2.6%</td>
<td>62</td>
<td>95</td>
<td>12</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>0.6%</td>
<td>80</td>
<td>94</td>
<td>13</td>
</tr>
<tr>
<td>Anger</td>
<td>2.4%</td>
<td>63</td>
<td>88</td>
<td>5</td>
</tr>
<tr>
<td>Inactivity</td>
<td>46.0%</td>
<td>36</td>
<td>40</td>
<td>0.4</td>
</tr>
<tr>
<td>Eating disorder</td>
<td>14%</td>
<td>91</td>
<td>67</td>
<td>2.75</td>
</tr>
</tbody>
</table>

Eating questions

- No simple questions for healthy eating
- CHAT had eating disorder questions
- Poor validation so removed
- Eating is complex, requires conversation about what is eaten and drunk & how much, how often, when, with whom
The ‘HELP’ question

For each question or pair of questions:
If yes to either or both of these 2 questions, do you want help with this?
☐ No  ☐ Yes but not today  ☐ Yes

- Increases specificity
- Patient-centred - prioritise issues
- Assess readiness to change

Goodyear-Smith et al Ann Fam Med. 2009;7(3):239-44
Arroll et al. BMJ. 2005 15;331(7521):884
Addition of ‘HELP’ question

- Nicotine dependency: 93 → 97%
- Problem drinking: 86 → 99%
- Other drug use: 97 → 99%
- Gambling: 97 → 99%
- Depression: 69 → 95%
- Anxiety: 74 → 99%
- Verbal abuse: 95 → 99%
- Verbal aggression: 94 → 99%

*Goodyear-Smith et al. Ann Fam Med. 2009;7(3):239-244*
eCHAT (electronic CHAT)

- Self-administration by touch screen in waiting room via web portal & integrated into the Electronic Health Record (EHR)

1. Patient completes eCHAT in waiting room on iPad.

2. Data securely transferred to electronic health record via website.

3. Summary results available to clinician at point of care.
eCHAT

- Tree structure: Added diagnostic tool if CHAT item positive
  - ASSIST for Smoking, Drinking, Other drugs use
  - PHQ-9 for Depression
  - GAD-7 for Anxiety

- Report at point of care gives summary results, scores and interpretation

Goodyear-Smith et al. Ann Fam Med, 2013,
How many cigarettes do you smoke on average a day?

- Less than 1 a day
- 1 - 10
- 11 - 20
- 21 - 30
- 31 or more
eCHAT Platform

- eCHAT launched using patient ID number
- Prompt for reception to advise if person recently completed an eCHAT
- Generic solution using NZ national IT standards
- eCHAT report accessed from within EHR
- READ Code & measurements EHR write-back
- Pdf image of report posted into EHR
- SNOMED codes mapped to eCHAT terms
**Alert**

**ALERT** Positive to self-harm

<table>
<thead>
<tr>
<th>Status:</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Number:</td>
<td>TEST A</td>
</tr>
<tr>
<td>Name:</td>
<td>TEST A</td>
</tr>
<tr>
<td>Date of Birth:</td>
<td>10/02/1997</td>
</tr>
<tr>
<td>Date of Questionnaire:</td>
<td>25/02/2013 10:42 a.m.</td>
</tr>
<tr>
<td>Date of Report:</td>
<td>25/02/2013 10:42 a.m.</td>
</tr>
<tr>
<td>Smoking</td>
<td>Never smoker</td>
</tr>
<tr>
<td>Drinking</td>
<td>Drinking above recommended limits</td>
</tr>
<tr>
<td></td>
<td>Feels need to cut down</td>
</tr>
<tr>
<td></td>
<td>Drunk more than meant to</td>
</tr>
<tr>
<td></td>
<td>ASSIST drinking score 24 = At risk (11-26 / 42)</td>
</tr>
<tr>
<td></td>
<td>Wants help not today</td>
</tr>
<tr>
<td>Other Drugs</td>
<td>User</td>
</tr>
<tr>
<td></td>
<td>ASSIST Cannabis score 21 = At risk (11-26 / 42)</td>
</tr>
<tr>
<td></td>
<td>Wants no help with cannabis</td>
</tr>
<tr>
<td></td>
<td>ASSIST Inhalants score 19 = At risk (11-26 / 42)</td>
</tr>
<tr>
<td></td>
<td>Wants help with inhalants not today</td>
</tr>
<tr>
<td>Gambling</td>
<td>Problematic gambling</td>
</tr>
<tr>
<td></td>
<td>Wants help today</td>
</tr>
<tr>
<td>Depression</td>
<td>Little interest or pleasure</td>
</tr>
<tr>
<td></td>
<td>Down or hopeless</td>
</tr>
<tr>
<td></td>
<td>PHQ9 score 10 = Moderate depression (10-14 / 27)</td>
</tr>
<tr>
<td></td>
<td><strong>ALERT</strong> Positive to self-harm</td>
</tr>
<tr>
<td></td>
<td>Wants help not today</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Worrying a lot</td>
</tr>
<tr>
<td></td>
<td>GAD7 score 7 = Low risk (0-9 / 21)</td>
</tr>
<tr>
<td></td>
<td>Wants no help</td>
</tr>
<tr>
<td>Abuse</td>
<td>Someone afraid of or hurting</td>
</tr>
<tr>
<td></td>
<td>Someone controlling</td>
</tr>
<tr>
<td></td>
<td>Wants no help</td>
</tr>
<tr>
<td>Anger control</td>
<td>No problem</td>
</tr>
<tr>
<td>Inactivity</td>
<td>Physically active</td>
</tr>
</tbody>
</table>
Drinking Score (ASSIST)

0-10  **Low risk** of health & other problems from current pattern of use

11-26  **At risk** of health & other problems from current pattern of use

27-39  **At high risk** of experiencing severe problems (health, social, financial, legal, relationship) as result of current pattern of use & likely to be dependent
PHQ-9 Score of depression severity
Range 0 to 27

- 0-4 None
- 5-9 Mild depression
- 10-14 Moderate depression
- 15-19 Moderately severe depression
- 20-27 Severe depression
### GAD-7 Score for anxiety disorder

Range 0 to 21

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>None</td>
</tr>
<tr>
<td>5-9</td>
<td>Mild anxiety</td>
</tr>
<tr>
<td></td>
<td>ie 0-9 = low risk</td>
</tr>
<tr>
<td>10-14</td>
<td>Moderate anxiety</td>
</tr>
<tr>
<td>15-21</td>
<td>Severe anxiety</td>
</tr>
</tbody>
</table>
Clinical Decision Support Integration

- Stepped care approach:
  - Self management
    (helpline, url, handout, e-therapy)
  - Clinician-provided
    (Rx, Exercise prescription, brief intervention)
  - Community referral
    (tailored to practice location)
  - Secondary care referral (mental health, D&A)

- Linked to e-referrals
Decision support through PMS

CASE-FINDING & STEPPED CARE
INTEGRATED DECISION SUPPORT USING eCHAT

- Patient completes eCHAT in waiting room
- Conversation about eCHAT in general practice consultation
- Self help & support: Resources - brochures & websites, Problem-solving, Goal-setting
- GP management: Brief interventions, CBT, MI, eTherapies, Medication, Extended consult, Monitoring
- Community referrals: PHO, Gov agencies, NGOs, Private practitioners

Examples:
- eCHAT items positive or negative
- ASSIST, PHQ-9, GAD-7 scores & interpretation where relevant
- Whether wants help today or later

Key:
- eCHAT: Electronic Case-finding & Help Assessment Tool
- ASSIST: Alcohol, Smoking & Substance Involvement Screening Test
- PHQ-9: Patient Health Questionnaire – Depression
- GAD-7: Generalised Anxiety Disorder Assessment
- AA: Alcoholics Anonymous
- NA: Narcotics Anonymous
- CALM: Computer Assisted Learning for the Mind
- TCA: Tricyclic antidepressant
- SSRI: Serotonin Reuptake Inhibitor
- SNRI: Serotonin Noradrenaline Reuptake Inhibitor
- CBT: Cognitive behavioural therapy
- MI: Motivational interviewing
- PHO: Primary Health Organisation
- NGO: Non-government organisations
- CADS: Community Alcohol & Drugs Services
- WINZ: Work & Income NZ

Examples:
- Mindfulness, yoga
- The Journal
- Nicotine replacement therapy, bupropion, varenicline
- Antabuse (Disulfiram), Naltrexone
- TCAs, SSRIs, SNRIs
- PHO mental health worker
- WINZ, CYPS, Housing NZ, MSD
- Lifeline, Youthline, Refuge
- Regional Sports Trust
- Psychologist, psychotherapist

Specialist (secondary) services:
- CADS
- Detox centres
- Psychiatry
Pilot study 2011 - 2012

- Funded by NZ Ministry of Health
- 2 practices, different demographics, Auckland, NZ
  - Medical summer student undertook patient recruitment & feedback collection
  - Practice staff provided feedback through qualitative interviews
  - eCHAT then handed to practices to continue with its use after pilot finished
  - Practices receive weekly activity reports as feedback on their use
Pilot study results

- 196 patients completed eCHAT & feedback (91% patient response rate)
- Most found easy to use, appropriate & did not object to questions
- Wanting help <10% – not overwhelming.
- Feedback from 7 GPs, 2 practice managers, 4 nurses, 5 receptionists generally positive.
- Suggestions for improvements provided.
- Practices continue to use regularly since research completed.

Time spent worthwhile?

• “Absolutely, you know that one’s chasing time from the minute you sit down in the morning till last thing at night I thought it was a very efficient system. It was seamless and a very efficient way of collecting information. The questions therefore are very important but the time spent was absolutely worthwhile it was a very efficient use of time.” (GP)

• “It’s quite simplistic, it’s straightforward, patients are responding very well to it.” (Receptionist)
Comment from GP

“I like .. that we are able to easily and painlessly from our point of view, extract all of that very relevant information. Often things that are hidden under the day to day other matters of the consultation which may prove to be profoundly relevant. A lot of the time of course everything’s normal and you have that sense at the end of it of just being able to tick that off and know things are okay but, but quite often things come up that you definitely lodge for future reference. It’s telling me more about the patients than I knew.” (GP)
Welcome Screen

Welcome to the eCHAT Patient Lifestyle and Wellbeing Screening System

The results of this questionnaire will be available for your doctor or nurse to review and if necessary discuss with you during your consultation. These results will be entered into your medical records. Anonymous (non-identifiable) data may be used for health research purposes.

Your answers are kept secure at all times and are sent to your doctor or nurse in an encrypted (coded) form. There are NO responses stored on this device.

This is a touch screen tablet. For each question please select the response that best fits your situation by pressing on it. It will move automatically onto the next question. If you select an answer that you didn't mean to you can go back by pressing on the Previous field.

If you need to increase the font size do this by pinching and moving your index finger and thumb further apart while touching the screen

If you agree to complete this questionnaire press the 'Start' field below. If you do NOT agree to complete this questionnaire press the 'Exit' field below.

Start

Exit
Effect of introducing weekly activity report

Practice One eCHAT Questionnaires Completed For Weeks Ending

# eCHAT

Week Ending

25/12/2011 1/01/2012 8/01/2012 15/01/2012 22/01/2012 29/01/2012 5/02/2012 12/02/2012 19/02/2012 26/02/2012 4/03/2012 11/03/2012 18/03/2012 25/03/2012 1/04/2012
Evaluation study 2012-2013

- Funded by NZ Ministry of Health
- 28 practices diverse selection inclusive of:
  - **Size:** small, medium, large (integrated health centre)
  - **Age:** youth (secondary schools, tertiary health centres), older adult (retirement village medical centre)
  - **Ethnicity:** Māori, Pacific populace practices
  - **Decile:** High, medium, low
  - **Location:** rural, semi-rural, urban practices
Findings

- Practice staff (receptionists, managers, nurses, doctors) of all participating practices surveyed electronically
- Responses from 22 front-of-house staff, 11 managers, 23 clinicians (n = 46)
- At least one staff member per participating practice provided feedback
- Majority of staff want to continue use after study
# Criteria for using eCHAT

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All new patients</td>
<td>96%</td>
</tr>
<tr>
<td>All patients not seen at practice for 2 years</td>
<td>83%</td>
</tr>
<tr>
<td>All patients not seen at practice for 1 year</td>
<td>52%</td>
</tr>
<tr>
<td>All pregnant patients &amp; those in 1st year post-natal</td>
<td>65%</td>
</tr>
<tr>
<td>Patients with chronic disease</td>
<td>74%</td>
</tr>
<tr>
<td>All youth aged 16 – 25 years</td>
<td>83%</td>
</tr>
<tr>
<td>All patients with past Hx mental illness or issues with substance misuse</td>
<td>87%</td>
</tr>
</tbody>
</table>
Does eCHAT lead to better health outcomes?

- Screening only of value if increased uptake of appropriate interventions

- **Recent Cochrane review:** Health checks screening general populations for multiple diseases & risk factors do not reduce morbidity nor mortality

  *Krogsboll et al, BMJ 2012: 345: e7191*

- Generic population approach of composite screens may be not effective nor cost-effective, may do harm

  *Goodyear-Smith BMJ 2013; 347: f4788.*
eCHaT is complex intervention

Mechanism of Action
Components of eCHAT intervention

- Targeted screening
- focused on patients indicating readiness to change
- Patients prioritise issues to address
- Facilitates conversation for shared decision-making
- Streamlined availability of stepped care management options

Need RCT – does this intervention improve health outcomes?
Study of eCHAT on interaction

How does eCHAT affect patient / health provider interaction?

- Videotape consultations
- Conversation analysis
eCHAT potential developments

- Should prove effective, administer through remote patient access
- Self administration via patient portal with self help information presented at point of completion
Remote patient access

Allows self-management without requiring clinician input