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Internet-based self-management interventions for youth with health conditions: Evidence and implications for public health

Review on which this evidence summary is based:
Stinson, J., Wilson, R., Gill, N., Yamada, J., Holt, J. (2009). **A systematic review of internet-based self-management interventions for youth with health conditions**. *Journal of Pediatric Psychology, 34(*5), 495-510.

Review Focus

P	Children/youth (6-18 years of age) with health conditions
I	Internet-based or enabled self-management education, such as handheld computers, video or telehealth programs, CD-ROMs, and video games
C	Standard care
O	Knowledge, social support, self-efficacy, emotions and health behaviours, health outcomes (e.g. frequency of symptoms), quality of life, and resource utilization

Review Quality Rating: 9 (strong) *Details on the methodological quality are available here.*

Considerations for Public Health Practice

Conclusions from Health Evidence	General Implications
This high quality review is based on primary studies of moderate methodological quality. Internet-based self-management interventions for youth with health conditions showed improved • symptoms among participants • disease-specific knowledge (related to asthma) • cost effectiveness mixed effects on • health care utilization • quality of life and no studies examined impact on • self-efficacy • social support • emotional well-being The interventions appeared to be • most effective among children with asthma • more effective in certain sub-populations (e.g. older children with lower SES and African Americans)	Public health programs should include and/or support Internet-based self-management interventions targeted specifically at older children with low SES, and African Americans, for youth to achieve the following: • increased number of symptom-free days and use of medications, and decreased days of school missed, and activity restrictions • increased asthma knowledge • decreased emergency room visits and physician consultations • provision of cost-effective educational programs for improving health outcomes and increasing asthma knowledge Public health internet-based self management interventions are not supported to achieve: • improved quality of life • decreased health care utilization (other than emergency room visits and physician consultation).

Evidence and Implications

What's the evidence?	Implications for practice and policy
1. Improving health outcomes in terms of symptom management or disease control (9 studies) • Seven studies found improvements in symptom management or disease control (e.g., symptom free days,	**1. Improving health outcomes in terms of symptom management or disease control** • Public health programs should consider using internet-based self-management education

use of medications, days of school missed, and activity restrictions) among intervention groups compared to controls.	interventions to improve symptom free days, use of medications, days of school missed, and activity restrictions.
2. Disease-related Knowledge (4 studies) • Two of three studies on asthma found an increase in knowledge among the intervention groups compared to controls, whereas another study found no improvements. • No impact on improvements in an encopresis study.	**2. Disease-related Knowledge** • Public health programs should use internet-based self-management education to increase asthma knowledge among children, • At this time public health programs should not use internet-based education to improve knowledge on encopresis
3. Quality of Life (6 studies) • Only two of six studies found improvements in quality of life among intervention groups compared to controls. • Four studies did not report outcome data.	**3. Quality of Life** • Public health programs should not rely on internet-based education programs for children with asthma to improve quality of life.
4. Health Care Resources (4 studies) • Two studies on asthma participants found decreases in emergency room visits and physician consultations; one study observed a decrease in emergency room visits only, and a fourth study reported no effect.	**4. Health Care Resources** • Public health programs should use internet-based programs for children with asthma to decrease emergency room visits and physician consultations, although no impact on hospitalizations and overall service use should be expected.
5. Cost-effectiveness (4 studies) • All four studies found the intervention was more cost-effective than traditional education programs (e.g. labour costs, resource utilization, health insurance, and societal costs).	**5. Cost-effectiveness** • Public health should incorporate internet-based education in program planning to achieve cost-effectiveness.
Legend: P – Population; I – Intervention; C – Comparison group; O – Outcomes; CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk **For definitions see the healthevidence.org glossary http://www.healthevidence.org/glossary.aspx*	

Why this issue is of interest to public health in Canada

It is estimated that at least 12% and up to 18% of children and adolescents live with a chronic condition.[1,2,3] It appears that a number of chronic conditions, such as diabetes, cancer, chronic inflammatory bowel, are appearing more frequently in adolescence.[3] As such, the health and well-being of this population requires increased attention.. A 2007 survey of pediatricians in British Columbia rated the quality and safety of health care services for children with chronic medical conditions lower than services for children with acute conditions/injuries, and current research suggests poor adherence to disease self-management activities in this patient cohort.[1,4] Furthermore, "the vast majority of adolescents do not receive comprehensive disease education linked with self-management therapy due to (a) difficulty accessing these services , (b) limited availability of trained professionals especially in rural areas, and (c) costs associated with these therapies."[4] The provision of innovative self-management tools through the internet, may prevent or diminish illness exacerbation and associated adverse health outcomes and prove an ideal means to improve chronic disease management.

1. Miller, A.M., Recsky, M., Ghazirad, M., Papsdorf, M., & Armstrong, R.W. (2007). Services for children and youth with chronic health conditions: Views of pediatricians in British Columbia. *Chronic Diseases in Canada, 28*(1-2),
2. Sawyer, S., Drew, S., & Duncan, R. (2007). Adolescents with chronic disease: The double whammy. *Australian Family Physician, 36*(8), 622-627.
3. Sawyer, S.M., Drew, S., Yeo, M.S., & Britto, M.T. (2007). Adolescents with a chronic condition: challenges living, challenges treating. *The Lancet, 369*(9571),1481-1489.
4. Stinson, J., Wilson, R., Gill, N., Yamada, J., & Holt, J. (2009). A systematic review of internet-based self-management interventions for youth with health conditions. *Journal of Pediatric Psychology, 34*(5), 495-510.

Other quality reviews on this topic are available on http://www.healthevidence.org

Suggested citation

Boyko, J.A., Tirilis, D., McRae, L., & Dobbins, M. (2012). Internet-based self-management interventions for youth with health conditions: Evidence and implications for public health. Hamilton, ON: McMaster University. Retrieved from http://www.healthevidence.org/documents/byid/20114/Stinson2009_EvidenceSummary_EN.pdf