Health and welfare from the Web

Pekka Mustonen, MD, PhD, CEO
Duodecim Medical Publications Ltd.
Finnish Medical Society Duodecim
Todays topics:

1. Health portal for professionals
2. Decision support for professionals
3. Health portal for citizens
4. PHR/EHR and related developments for the patients and citizens
Finnish Medical Society Duodecim

- Founded 1881
- > 90% of the Finnish physicians (20,000 members)
- Publications since 1883
- Duodecim Journal since 1885
- Continuous Medical Education
- Support the young scientists

- Duodecim Medical Publications Ltd. 1984
We publish a national health portal for the health care professionals (commercial!). In 2011 more than 50 million opened articles!
The number of articles opened in the Duodecim portal service 2002-2007 in Finland
EBM Guidelines is a unique, concise and easy-to-use collection of clinical guidelines for primary care combined with the best available evidence. Continuously updated EBM Guidelines follows the latest developments in clinical medicine and brings evidence into practice.

The collection includes:
- Almost 1000 concise primary care practice guidelines covering a wide range of medical conditions. Both diagnosis and treatment are included.
- Over 3000 high-quality evidence summaries supporting the given recommendations - a specific feature of the guidelines is the use of evidence codes (graded from A where strong evidence exists and further research is unlikely to change the conclusion, to D where the evidence is weak and the estimate of effect is uncertain).
- A library of 1000 high-quality photographs and images of all common and many rare dermatological conditions, electrocardiograms and eye pictures.
- All reviews from The Cochrane Database of Systematic Reviews cited within EBM Guidelines are provided in full text.

9 language versions
11 by the end of 2011
Health Gate – questionnaire for physicians 2009:

Results:

(agree or fully agree %)

- Enables better care of the patients  
  97,8%

- Saves time  
  51,3%

- Reduces the need for traditional consultations  
  74,8%

- Reduces the need for laboratory tests  
  37,9%

- Reduces the need for sending patients to specialized care  
  56,8%
EBM Guidelines focus now:

The right information
- Automatically
- At the right place
- At the right time

"Ilkka Kunnamo, Editor in Chief,“
**Diagnoses**

30.05.2008 *Non-insulin-dependent diabetes mellitus*

<table>
<thead>
<tr>
<th>Acute diagnoses</th>
<th>Procedures and treatments</th>
<th>Previous visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12.06.2008 <em>Total cholecystectomy nec</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication and dosage</th>
<th>Measurements and target values</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.06.2008 <em>Enalapril 20mg tablets</em></td>
<td>Height (cm) 179 cm (6/5/2008)</td>
</tr>
<tr>
<td>12.06.2008</td>
<td>Weight (kg) 94 kg (6/2/2008)</td>
</tr>
<tr>
<td>30.05.2008 <em>Simvastatin 40mg tablets</em></td>
<td>BMI 29.3 (6/2/2008)</td>
</tr>
<tr>
<td></td>
<td>BP (Systolic) 138 mmHg (6/3/2008)</td>
</tr>
<tr>
<td></td>
<td>BP (Diastolic) 72 mmHg (6/3/2008)</td>
</tr>
</tbody>
</table>

**Medicine allergies**
- Penicillin

**Other allergies**
- Peanut
**Special diet**
- Lactose-free

**Lifestyle and risks**
- Yes
- Smoking
- Pack years: n/a
- Risk of coronary heart disease 11%
- Mortality risk of cardiovascular disease 1%
Diagnoses
30.05.2008 Non-insulin-dependent diabetes mellitus

Reminders:
- The patient has type 2 diabetes. Metformin is the primary choice for better glycemic control. As the glomerular filtration rate calculated with the MDRD formula is below normal range (44 ml/min), lower dosage should be considered. (scr00016)
- The patient has type 2 diabetes and no indication of ASA allergy or asthma. Based on current knowledge, ASA treatment is encouraged using a dose 100 mg daily. (scr00108)

Guidelines:
- Metabolic syndrome
- Newly diagnosed type 2 diabetes
- Diabetes: definition, differential diagnosis and classification
- Treatment and follow-up in type 2 diabetes
- Lifestyle education in type 2 diabetes
- Oral antidiabetic drugs in the treatment of type 2 diabetes
- Insulin therapy in type 2 diabetes

Medication and dosage
12.06.2008 Enalapril 20mg tablets
30.05.2008 Simvastatin 40mg tablets

Medication and Drug Allergies from GP Systems

Other allergies
Peanut

Special diet
Lactose-free

Lifestyle and risks
- Smoking
  - Risk of coronary heart disease: 11%
  - Mortality risk of cardiovascular disease: 1%
- Yes
- Pack years: n/a
Reminders:
- The patient has type 2 diabetes. Metformin is the primary choice for better glycemic control. As the glomerular filtration rate calculated with the MDRD formula is below normal range (44 ml/min), lower dosage should be considered. (scr00016)
- The patient has type 2 diabetes and no indication of asthma. Based on current knowledge, ASA therapy can be used in high doses, keeping in mind the need for ASA therapy using a dose 100 mg daily. (scr00100)

Guidelines:
- Metabolic syndrome
- Newly diagnosed type 2 diabetes
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- Insulin therapy in type 2 diabetes

Metformin as a primary choice for an oral hypoglycemic agent

Script description

The script is launched if the diagnosis is type 2 diabetes. First, the script checks whether the drug list contains metformin. If it does not, the script checks for the plasma/serum creatinine value. If the GFR is in the normal range, reminder (1) is shown. If GFR < 60 ml/min, reminder (2) is shown.

Evidence and Guidelines

EBM source(s)

- Metformin is a well-tolerated oral hypoglycemic agent, which reduces hepatic glucose production and provides proved evidence against cardiovascular events in type 2 diabetic subjects. It belongs to insulin sparing antihyperglycemic agents which do not introduce a risk for hypoglycemia. Metformin has been shown to be especially useful in insulin-resistant states and as the primary drug-of-choice in type diabetes, if the body mass index exceeds 23-25 kg/m².
- The available oral antidiabetic agents are equally effective at lowering glucose levels. Only the sulfonylureas and metformin are proven to reduce long-term complications and only metformin
Reminders:
- The patient has type 2 diabetes. Metformin is the primary choice for better glycemic control. As the glomerular filtration rate calculated with the MDRD formula is below normal range (44 ml/min), lower dosage should be considered. (scr00016)
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Guidelines:
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- Insulin therapy in type 2 diabetes

[Review]
Metformin monotherapy for type 2 diabetes mellitus

PDF (Size 1202 K)

Abstract
Plain language summary
Background
Objectives
Criteria for considering studies for this review
I've already got a diagnosis from HomeDoc.com. But I thought I'd see you for a second opinion!
Duodecim health-portal for the general public 2005

• We provide the Evidence-Based information also for the general public (we have 1000 Evidence-Based key-articles, >10 000 articles in total).

• Aim to integrate the contents with Personal Health Records.

• Aim to provide the decision support scripts for the general public too...
The number of articles opened in the professional (commercial) and general public portals during 2001-2007 in Finland.
2012 more than 30 million opened articles!
Duodecim questionnaire 2009

n = 8602 (users of the Health Library)

Did you find the information you searched for from Duodecim? / from Internet?

<table>
<thead>
<tr>
<th></th>
<th>Duodecim Health Library</th>
<th>Internet *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very well</td>
<td>40,1 %</td>
<td>(12,1%)</td>
</tr>
<tr>
<td>As expected</td>
<td>55,3 %</td>
<td>(78,8%)</td>
</tr>
<tr>
<td>Did not find</td>
<td>4,6 %</td>
<td>(8,6%)</td>
</tr>
</tbody>
</table>

* Controll group of Internet users that have searched health-info but did not know Duodecim Health Library (n = 740)
**DUODECIM**

**Duodecim questionnaire 2009:**
n = 8602 (users of the Health Library)

Did the use of Duodecim Health Library / Internet (control) influence your need to contact the health-center?

<table>
<thead>
<tr>
<th></th>
<th>Duodecim</th>
<th>Control</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowered significantly</td>
<td>21.9 %</td>
<td>7 %</td>
<td></td>
</tr>
<tr>
<td>Lowered to some extent</td>
<td>37.4 %</td>
<td>36 %</td>
<td></td>
</tr>
<tr>
<td>No influence</td>
<td>29.4 %</td>
<td>53 %</td>
<td></td>
</tr>
<tr>
<td>Increased to some extent</td>
<td>7.9 %</td>
<td>3.5 %</td>
<td></td>
</tr>
<tr>
<td>Increased significantly</td>
<td>3.4 %</td>
<td>0.5</td>
<td></td>
</tr>
</tbody>
</table>

* Controll group of Internet users that have searched health-info but did not know Duodecim Health Library (n = 740)
Empowered citizens...

"Are you sure I'm getting enough fiber?"
People actually know what is good and bad for their health!

How to turn the knowledge to action?
Life at Stake – how long you wish to live?

A TV-program aiming to make a change in health behaviors!

> 500,000 people took the test! (>10% of the population)
How to live 40-years longer?  
Finrisk-algoritm

- Blood pressure  → 11 years
  - Cholesterol
  
- Fruits, vegetables, calories  → 8 years
  - Physical activity

- No smoking  → 13 years
  - No alcohol-related problems

- Optimism, happiness  → 9 years
  - Life-satisfaction
  - Stress-management

Algorithm based on prospective Finrisk-study by the National Institute for Health and Wellbeing in Finland
Why should I live Long?
When do the best years of life begin?

> 300 000 Finns answered this to this question!

20-years old say: 20
40-years old say: 70
70-years old say:
In 2009 the second production term of Life at Stake: The secret of happiness. 22 lifestyle questions and 50 questions exploring psychological wellbeing.

The Happiness Project

Would you like to be happier? According to research, you can increase your level of happiness simply by changing the way you think and act. The Happiness Project is a unique TV format which tries to unearth the secrets of happiness. A lonely overweight artist, widowed single-parent, workaholic... Five people take part in a fascinating televised experiment. During six months they try methods of the school of positive psychology to increase a person’s level of happiness. The happiness test, developed carefully by qualified and experienced professionals, is made available to the public online. The show aired on YLE TV1 in Finland this Autumn and performed well, regularly beating the slot average.
Data-analysis

We divided the people into two groups based on how they replied to the question "I have a strong confidence in the future".

We placed the median-answers of the two groups into the Finrisk-calculator predicting the average length of life.
Difference in the average life-length prediction 11 years and 15 years if smoking and binge drinking included!

As a result of differences in health behaviors and life-satisfaction ...
Income inequality and mortality: importance to health of individual income, psychosocial environment, or material conditions

John W Lynch, George Davey Smith, George A Kaplan, James S House

Studies on the health effects of income inequality have generated great interest. The evidence on this association between countries is mixed, but income inequality and health have been linked within the United States, Britain, and Brazil. Questions remain over how to interpret these findings and the mechanisms involved. We discuss three interpretations of the association between income inequality and health: the individual income interpretation, the psychosocial environment interpretation, and the neo-material interpretation.

Methods
We reviewed the literature through traditional and electronic means and supplemented this with correlational analyses of gross domestic product and life expectancy and of income inequality and mortality trends based on data from the World Bank, the World Health Organization, and two British sources.

The individual income interpretation
According to the individual income interpretation, aggregate level associations between income inequality and health reflect only the individual level association between income and health. The curvilinear relation between income and health at the individual level is

Summary points
Income inequality has generally been associated with differences in health
A psychosocial interpretation of health inequalities, in terms of perceptions of relative disadvantage and the psychological consequences of inequality, raises several conceptual and empirical problems
Income inequality is accompanied by many differences in conditions of life at the individual and population levels, which may adversely influence health
Interpretation of links between income inequality and health must begin with the structural causes of inequalities, and not just focus on perceptions of that inequality
Reducing health inequalities and improving public health in the 21st century requires strategic investment in neo-material conditions via more equitable distribution of public and private resources
Education vs. Income (Duodecim data)

Blue < 10 years
Red > 16 years
> 30 % better income for the positive!

<table>
<thead>
<tr>
<th>Category</th>
<th>Median</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (5-7) N=47921</td>
<td>40000 €</td>
<td>51856,0 €</td>
</tr>
<tr>
<td>Negative (1-3) N=9092</td>
<td>30000 €</td>
<td>38389,3 €</td>
</tr>
</tbody>
</table>
Work stress experience

Positive 11% not at work
Negative 19% not at work
I am satisfied with my socioeconomic status?

- Fully agree
- Fully disagree

Positive (5-7) belonging to the lowest income quartile (mean 4.8)
Negative (1-3) belonging to the highest income quartile (mean 4.1)
Satisfaction with social relationships

Positive (5-7) vs. Negative (1-3)

<table>
<thead>
<tr>
<th></th>
<th>median</th>
<th>mean</th>
<th>sd</th>
</tr>
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<tbody>
<tr>
<td>ET01</td>
<td>6</td>
<td>5,44</td>
<td>1,2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>median</th>
<th>mean</th>
<th>sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET01</td>
<td>4</td>
<td>3,75</td>
<td>1,59</td>
</tr>
</tbody>
</table>

7 = Very satisfied
6 = Satisfied
4 = not satisfied / not unsatisfied
2 = Unsatisfied
1 = Very unsatisfied
Marriage

Not married

40%

Negat.  Posit.

Problems in marriage?

Almost all the time  Sometimes  Seldom

Negat.  Posit.

0 0,05 0,1 0,15 0,2 0,25 0,3 0,35 0,4 0,45

1 2 3

0 0,1 0,15 0,2 0,25 0,3 0,35 0,4 0,45

1 2 3
We have a long experience from therapies, executive training programs, positive psychology methods, etc.

Functional schemes, reactions, attitudes and control of negative emotions can be developed and learned.

Pre-requisite is own interest, activity, first steps and feelings of success...

Can you learn Positivity or Happiness?

Yes!
The How of Happiness

- Genetic 50%
- Environment 10%
- Attitudes, habits, Reactions... 40%

Sonya Lyubomirsky, 2007
From theory to Implementation...
PHR as an integrated part of the EHR
- Patients right to see his/her own dg`s, drugs, labs, etc.

Empowerment by context-sensitive patient information management
TERVEYSTILANNE - Yhteenveto

PYSYVÄT SAIRAUDET

Lääkäriisi on todennut sinulla alla olevat sairaudet.

Sairaus

1. 10 Essentiaalinen (primaaarin) verenpainetauti
2. J45.9 Määrittämätön astma
3. F32.9 Määrittämätön masennustila

LAÄKITYS

Lääke | Aloitettu | Todettu
--- | --- | ---
**SPESICOR DOS 95 MG 100** | 1.3.2007 | 2007
Resepti kirjoitettu: 1.3.2007

Lääke | Aloitettu | Todettu
--- | --- | ---
PULMICORT TURBUHALER 200µg/dos 200 | 1.3.2007 | 2003
Resepti kirjoitettu: 10.4.2008

Voiko masennusta hoitaa ja ehkäistä itse?

Masennus
2.2.2011
Jyrki Tuuriari

- Positiivisuuden kasvattaminen
- Toipumisen edistäminen

Masennusoireilussa on hankalaa, että oireet ovat toipumisen esteitä. Olisi hyvä syöda monipuolisesti, nukkua hyvin, olla aktiivinen ja ajatella realistisesti. Masennuksen tyypillisiä oireita ovat kuitenkin mm. kehon ruokahaua, unettomuus ja unihäiriöt, voimattomuus ja negatiiviset ajattelutavut (ks. «Masennustilan oireet ja diagnoosi» 1). Toivekkuutta olisi hyvä pitää yllä, mutta masennustilalle on omaista toivottomuus.

Oman elämän hahmottamisessa voi ihan aluksi esittää itselleen seuraavat kysymykset: Onko minulla ollut elämäni aikana alavireistä tai masentunutta olia ja kuinka paljon se on haitannut elämääni? Kuinka tärkeää minulle on voida paremmin? Haluanko laittaa hyvän olon lisäämisen elämän asialla tärkeimmien tavoitteiden joukkoon?

Positiivisuuden kasvattaminen

Masennussairauden kanssa kamppailuva ei usko enää voivansa kokea mielinlyvää, mielenkiintoa asioihin eikä iloa tai riemuaan. Positiiviset tunnekokemukset chiaavat meitä kohti sitä, mikä on meille hyväksi. Masentunut ei kysene siirtymään positiiviin tunnekokemuksiin. Masennus vie ihmisiä halun olla sosiaalisissa tekemisissä muiden kanssa.

Masennussairaus asettaa ihmisen haastavan tehtävän eteen: kuinka kasvattaa positiivisen tunnekokemuksen määrää ja vähentää negatiivisen tunnekokemuksen taakkaa? Masennuksen omatoimisessa hoitaminessa ja ehkäisyssä kannattaa pyrkiä toimimaan kolmella suunnalla:

1. Pyrkiä pitämään elämää aktiivisena — tai masennustilan jälkeen pyrkiä aktivioimaan sitä uudelleen (ks. «Masennusoireilun vähentäminen elämää aktivoimalla» 2).
2. Pyrkiä muuntamaan ja hallitsemaan taipumusta ajatella negatiivisesti (ks. «Masennusoireilun liittyvän kieltelyyden voittaminen» 3).
ELECTRONIC HEALTH EXAMINATION

If you do not know the answer to one of the following questions or you wish to leave it outside the electronic health examination, you can leave the field empty. Required fields are marked with a (*)-symbol.

Basic information

Sex
What is your sex? (*)
- Man
- Woman

Age
How old are you? (*)
55 years

Height
How tall are you? (*)
177 cm

Weight
How much do you weigh in light clothing? (*)
68 kg

Waist Measurement?
What is your waist measurement? ?
80 cm

Education
For how many years in total have you studied as a full-time student during your life?
18 years
VIRTUAL HEALTH CHECK - REPORT

Your lifestyle and living conditions influence your life expectancy. According to estimates, men in your age group with similar lifestyles achieve on the average about the age of 80. The chart below shows estimated life expectancy and also the average remaining healthy life years and ailing years.

Life expectancy

If your were to change your lifestyle to most favorable, you might increase your healthy life years by 0.

Ailing years are characterised with sicknesses, the likelihood of which can also be estimated from your health habits. The chart shows the risk during your lifetime of suffering a heart attack, stroke, dementia or diabetes. At the same time the chart shows your disease risk, if your lifestyle were as healthy as possible.
Health

Blood pressure
You should measure your blood pressure for risk of vascular diseases. To test your blood pressure, turn to your local health clinic or occupational health care.

Cholesterol
You should measure your level of cholesterol for risk of vascular diseases. Ask for a cholesterol measurement from your local health clinic or occupational health care.

Weight management

Weight
Based on the body mass index your weight is normal, which greatly promotes your health. Usually one’s weight tends to accumulate over years. The upper level of a normal weight (body mass index 25), for you, 78.0 kg. Keep track of your weight so as not to exceed this. A healthy diet and physical exercise will help to prevent overweight.

Waist measurement
Abdominal obesity or the accumulation of excess weight around the waist increases the risk of disease. For men, the abdominal waist measurement limit is 100cm, the ideal being less than 94cm. Sometimes fat can accumulate around the waist and in the abdominal cavity by a few too many kilos, even though your BMI is still within the normal range.

Your waist measurement is under 94cm, which is ideal for health.

Diet

Vegetables, fruits and berries
Daily consumption of fruits and berries is good for your health.
SETTING OF GOALS

You can improve your health estimation by making changes to your way of living. The best changes are made, when you do them gradually, so that the renewed habit remains as part of your daily life. You should choose just 1-2 changes at first. When you have achieved permanent changes, you can choose some new targets.

For your chosen changes, you need to set a goal. Health coaching supports you in each part of your target for three months, giving you encouragement and feedback on your progress. In order for the program to give you personalized feedback, monitoring information needs to be recorded as regularly as possible. If required, after the monitoring, you could set yourself a new goal or choose some new things to change.

Weight management
For someone with a normal weight, weight loss is not necessary from a health point of view. However, it can still be a good idea to check that you are eating a healthy and varied diet.

Diet
By increasing the consumption of fresh vegetables, fruit and berries you can prevent cardiovascular diseases and reduce the risk of cancer diseases. In addition to this the consumption of vegetables and fruit helps with blood pressure and weight management.
Stress
We experience stress very individually in different situations. If you experience stress at work it may be due to unreasonable worker requirements and expectations. However, not all situations have available solutions, for example negotiating or cutting workload. Our own attitudes, interpretations and opinions affect the issue strongly.

You can't "control" stress, but the ability to tolerate stress can be developed. If you choose to do a training program, you receive two messages a week, which include stress tolerance exercises.

Life management
You can improve your mental well-being through exercises. According to studies they can enhance your stress tolerance, creativity and productivity, and combat depression. You may also experience an increase in energy and immunity levels. Choose one of the following exercises to begin with.
Electronic health coaching as an integrated part of the system (email, mobile...)!

We experience stress very individually in different situations. If you experience stress at work it may be due to unreasonable worker requirements and expectations. However, not all situations have available solutions, for example negotiating or cutting workload. Our own attitudes, interpretations and opinions affect the issue strongly.

**Stress**
You can’t “control” stress, but the ability to tolerate stress can be developed. If you choose to do a training program, you receive two messages a week, which include stress control development exercises.

☐ I start to do Stress control development exercises

**Life management**
You can improve your mental well-being through exercises. According to studies they can enhance your stress tolerance, creativity and productivity, and combat depression. You may also experience an increase in energy and immunity levels. Choose one of the following exercises to begin with.

☐ well-being exercises not selected

☐ Good deeds exercises

☐ Gratitude exercises

☐ Optimism exercises

☐ Sociability exercises

**Alcohol**

By reducing alcohol consumption you can reduce the risk of many cardiovascular, liver, nerve and cancer related diseases. The limit of moderate consumption is around 7-14 units of alcohol per week.

I want to start monitoring my drinking...
PISSED OFF?
A Nation Struggling Against Negativity
Thank you!

“But, remember, you’re responsible for your own happiness.”

by Leo Cullum