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Evaluation of web-based patient portal for chronic disease management

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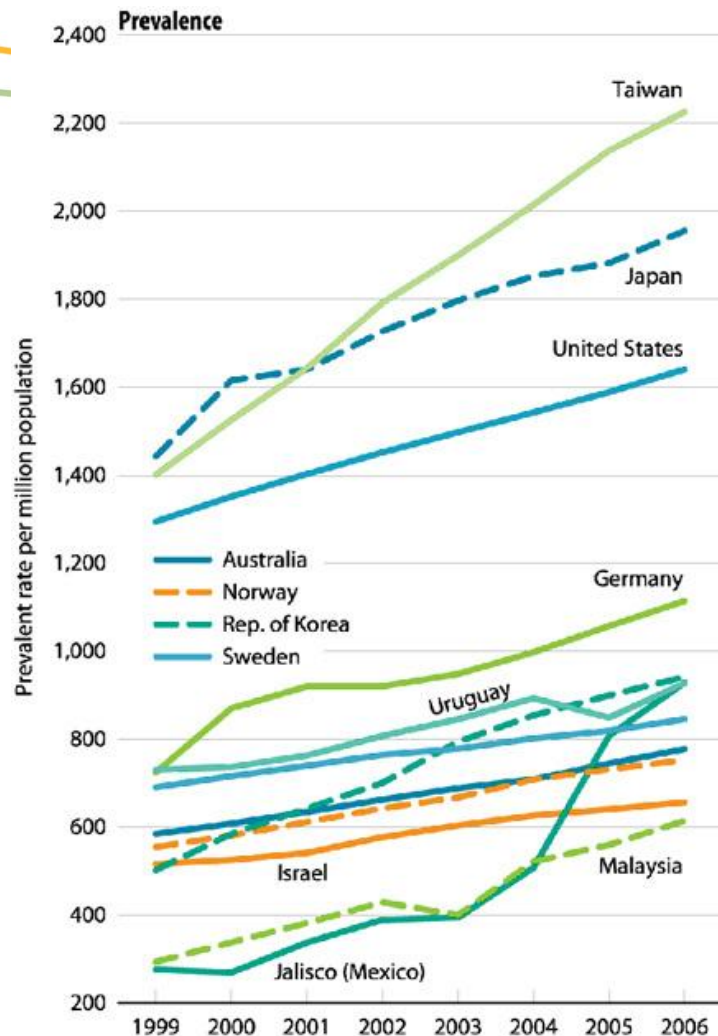
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OVERVIEW...

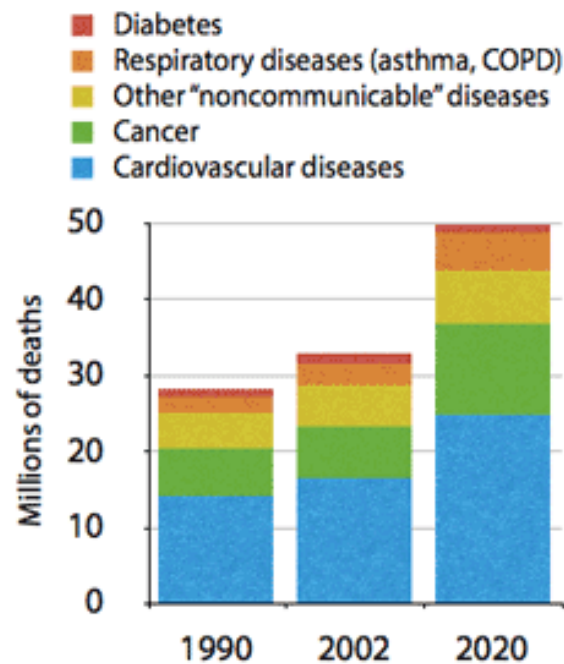
1. Background
2. Methods
3. Results
4. Discussion/Conclusions
5. Question period

BACKGROUND

Chronic Disease: World



Annual Global Mortality, by Category Chronic Illness



Source: Yach, D. et al. JAMA 2004;291:2616-2622.

Public Health Agenda for Chronic Diseases, 2008

The research institute of London Health Sciences Centre and St. Joseph's Health Care, London.

Chronic Disease: CAN/ON

CANADA:

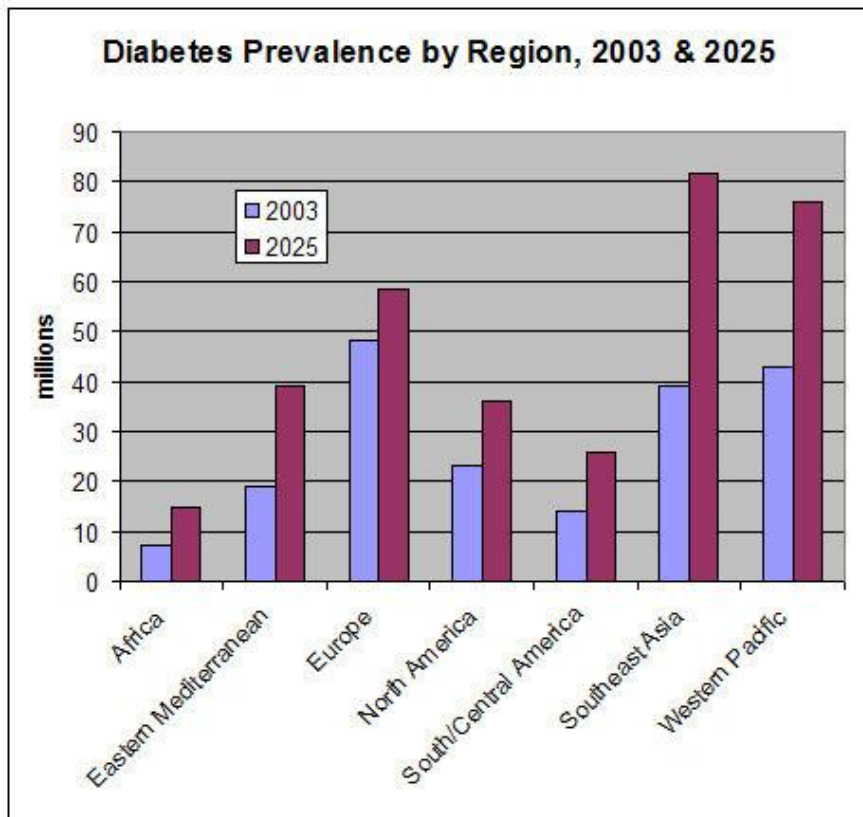
- >9 million sufferers (1)
- Accounts for 87% of all disability
- 67% of all healthcare costs (1)
- 2015: cause 89% of all deaths (2)

ONTARIO:

- 1/3 ppl have at least 1 CD (3)
- Costs ~\$80billion/year (3)
- High prevalence of Prostate cancer and Type II Diabetes in Ontario (4)



Type II Diabetes: CAN/ON



International Diabetes Federation, 2005

ONTARIO

Estimated Diabetes and Prediabetes Prevalence									
P/T	Prevalence (%)			Prevalence Increase (%)			Prediabetes Prevalence (%)		
	2000	2010	2020	2000 2010	2010 2020	2000 2020	2005	2010	2020
CN	4.2	7.6	10.8	103	57	220	21.5	21.8	22.6
BC	4.0	7.4	10.3	114	62	247	20.7	20.9	21.6
AB	3.3	5.8	8.6	116	67	262	20.8	20.8	22.2
SK	4.2	7.0	9.9	75	49	160	23.7	23.5	24.0
MB	4.5	7.6	10.1	78	47	162	22.4	22.4	22.9
ON	4.5	8.3	11.9	114	63	249	21.4	21.6	22.2
QC	4.1	7.2	9.9	91	48	182	21.3	21.9	22.9
NB	4.7	8.8	12.7	86	50	180	23.1	23.6	24.8
NS	5.1	8.9	12.2	79	44	158	23.2	23.8	24.8
PEI	4.4	8.0	11.4	89	57	197	23.9	24.4	25.3
NL	5.0	9.3	14.4	80	56	181	23.6	24.4	26.2
NU	NA	NA	NA	NA	NA	NA	NA	NA	NA
YK	NA	NA	NA	NA	NA	NA	NA	NA	NA
NT	NA	NA	NA	NA	NA	NA	NA	NA	NA

Canadian Diabetes Association, 2005

Prostate Cancer: CAN/ON

Prostate Cancer (C61), World Age-Standardised Incidence and Mortality Rates, World Regions, 2008 Estimates



Estimated Age-Standardized Incidence Rates for Selected Cancers by Sex and Province, Canada, 2011

	Cases per 100,000										
	Canada*	BC	AB	SK	MB	ON	QC†	NB	NS	PE	NL‡
Males											
All Cancers	456	412	455	461	440	445	487	525	529	543	440
Prostate	122	117	130	145	100	134	100	156	140	158	119
Lung	65	49	55	58	61	54	92	87	80	80	58
Colorectal‡	61	52	58	64	64	58	67	63	75	64	89
Bladder§	27	28	29	27	30	18	37	33	34	31	25
Non-Hodgkin Lymphoma	21	20	21	21	22	22	20	23	20	19	16
Melanoma	15	17	16	12	13	18	9	18	23	20	19
Kidney	15	10	15	15	20	14	17	23	21	22	17
Leukemia	15	14	18	17	16	15	15	14	13	20	7
Oral	11	10	9	9	13	11	11	12	13	13	12
Pancreas	10	9	10	10	10	9	12	12	10	12	4
Stomach	9	9	9	8	10	9	10	10	9	8	15
Brain	8	7	8	7	7	8	9	8	8	9	10
Liver	7	7	7	4	6	7	8	4	4	4	5
Esophagus	6	6	8	5	6	6	6	8	8	7	5
Thyroid	6	3	6	3	4	8	6	8	6	6	4
Multiple Myeloma	6	5	6	5	6	6	7	6	6	10	4

Canadian Cancer Society, 2011

Cancer Research UK, 2008

The research institute of London Health Sciences Centre and St. Joseph's Health Care, London.

Chronic Disease: Trends

- ↑ cohort of aging baby-boomers
- ↑ prevalence of diabetes and cancers
- Inadequate CD management and treatment (3)
- Web 2.0 viable option for improving patient engagement

Hypothesis:

CD patient participatory care needs requires innovative use of communication technology, including interactive, tailored programs with feedback and social support through networks, not to mention access to care

Objective:

1. In conjunction with a web portal provider, develop, implement and evaluate web-based CD management system for patients with diabetes (My Diabetes Wellness Portal™ (MyDWP)) and prostate cancer (Proportal™ (ProP)).
2. Test the effectiveness and usability of interactive web-based patient portal to provide prostate cancer, and diabetes patients with knowledge guidance and education necessary to help them understand their disease

METHODS

SAMPLE

- Recruited at local hospital
- Two disease cohorts
- Inclusion/ Exclusion

STUDY DESIGN

- Pilot
- Allocation to customised portals
- Usual care + intervention
- Followed for 6 months
- REB #16100E

PORTAL FEATURES

Communicate

- Message Centre
- Community Forum *
- System Feedback

Learn

- Library *

Plan

- Goals & Targets
- Calendar
- Medications
- Diet
- Exercise

Track

- Summaries
- Body Weight
- Blood Pressure
- Pulse
- Blood Glucose
- Ketones (Urinary)
- Peak Flow
- Smoking
- Prostate Cancer *
- Attacks & Reactions

Assess

- Wellness Surveys

My Health Record

- Personal Health Record

My Account

- Profile
- External Notifications

Welcome Al Ankinator!

My Well-To-Do's

- [Complete the Conditions & Diagnosis section of your PHR](#)
- [Add some personal goals](#)
- [Enter your medications into your cabinet](#)

[View Full List](#)

My Notifications

- [Inbox \(0 unread, 0 require confirmation\)](#)
- No **Influenza Shot** recorded in the past year. [Details...](#)
- No **Weight** reading recorded today. [Details...](#)
- No **Clinic Blood Pressure** recorded in the past three months. [Details...](#)
- No **Lipid** tests recorded in the past year. [Details...](#)
- No **Pneumococcal Vaccine** recorded in the past 6 years. [Details...](#)

My Achievements

- ★ PHR Notifications: **0 of 5** Complete!
- ★ Well-To-Dos: **1** Complete!
- ★ Forum: **1** Messages Posted!
- ★ Blood Pressure: **38 %** Optimal!

Library

- Managing Congestive Heart Failure** - A self-management resource for patients with Congestive Heart Failure. A 7 session guide to taking charge of the controllable aspects of your illness. 0 0
- Accupril Monograph** - Contains Monograph & Patient information on the medication Accupril. 0 0
- Lipitor Monograph** - Contains Monograph & Patient information on the medication Lipitor. 0 0

[Go to the Library...](#)

Community Forum

- Diabetes Supplies:** "Any Pharmacy" 0 0
- Diabetes Supplies:** "Where is the best place to buy test strips?" 0 0
- Food:** "asdfaf" 0 0

[Go to the Community Forum...](#)

PRIVACY

- Encrypted stored data
- Portal company did not have access to any data
- Established secure hospital firewall
- Anonymised logins
- Disease specific data provided through manual entry & HL7 data transfer

Usability Assessment

Quantitative

Telephonic surveys at 3 months

28 likert scale items and 4 open-ended questions

Questions based on Evagelista et al 2006

Content: motivation, expectation, specific features, benefit.



Qualitative

Focus groups with each cohort at study end

Semi-structures interview schedule

Contents: motivations, expectations, usability, future recommendations



ANALYSIS

QUANTITATIVE

- Frequency of items in survey
- Usage statistics monitored by portal

THEMATIC

- Grouped open-ended survey questions
- Focus group transcripts
- Pre-empted and emergent themes

RESULTS

Participation

- 34 participants completed survey
- 7 participants took part in focus groups
- Overall 99 participants consented to participate in study

Themes	Features	Future Portal Recommendations
a. Motivations	a. Community forum	a. Design
b. Expectations	b. Tracking tools	b. Pedagogy
c. Usability	c. External notification	c. Medical records
d. Portal Usage	d. Personal health record	
e. Privacy & Security		

DISCUSSION

Overview:

- Tailored, interactive web-based portal essential
- $n = 58$ across both cohorts logged in and used the portal
- Majority derived benefit from the tool

Next steps:

- Enhance interactive social medium
- Engage participants in evaluation to ensure sustainability
- Participant recommendations
 - Emphasize social aspects of portal
 - Improve self-management opportunities

Study Limitations:

- Patient attrition
- Bias

CONCLUSION

Closing remarks:

- Pilot study marks important journey into e-based CD management
- Exploring cost-effective ways to improve CD self-management is of growing importance
- Future portals can be designed based on the findings of this research

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6. Allan J. Collins, CKD and the Public Health Agenda for Chronic Diseases, Figure 12.1 (continued; Volume Two) USRDS 2008 ADR, CDRG presentation, 25 March 2009
7. International Diabetes Federation; MedMarket Diligence, LLC, [report #D500](#), "Diabetes Management, Worldwide, 2005-2015: Products, Technologies and Markets in the U.S., Europe, Japan & Rest of World."

THANK YOU!!

Questions?

<http://www.ithinkresearch.com/>

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