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CHRONIC DISEASE IN VULNERABLE IMMIGRANT POPULATIONS

A growing concern



Presenter Disclosure

Presenter: Nicole Nitti MD CCFP(EM)FCFP, AKM

Relationships to commercial interests:

No commercial interests

Disclosure of Commercial Support

- No commercial support of conflict of interest

Question:

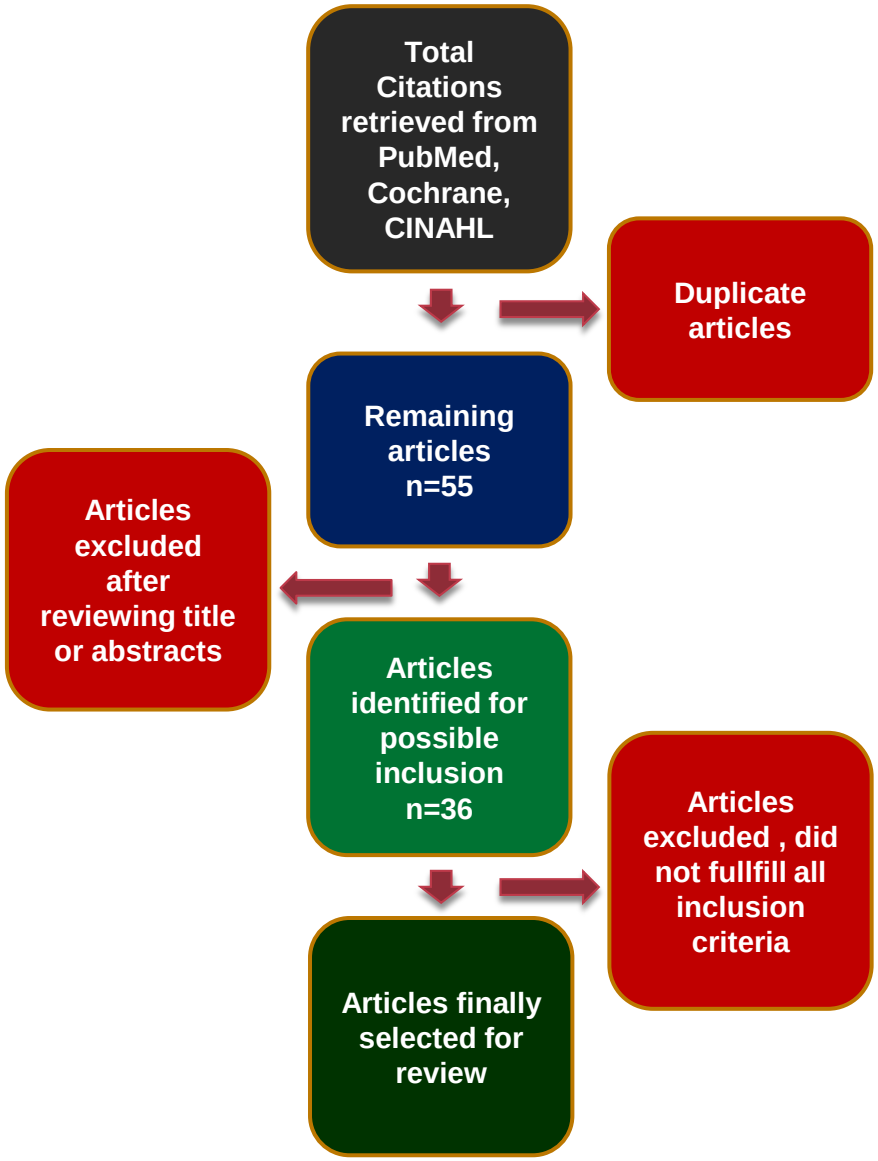


*How do **poverty and migration experience/status** affect the risk and management of **chronic illness** and how can we mitigate it?*

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What we did:

- **Literature review**
  - Conducted systematic lit review
  - Adopted PRISMA model for sorting articles
  - Keywords: refugee, chronic disease, hypertension, diabetes, chronic care model
  - Searched databases
  - Generated non-directional hypothesis



How do we collect data?

15. What is your current immigration status? Check ONE only.

- ❑ Canadian Citizen
- ❑ Permanent Resident
- ❑ Government Assisted Refugee # _____
- ❑ Privately Sponsored Refugee # _____
- ❑ Refugee claimant
- ❑ Humanitarian or Compassionate process
- ❑ Live-in Caregiver
- ❑ Temporary Foreign Worker
- ❑ Seasonal Agricultural Worker
- ❑ Student Authorization (Student Visa)
- ❑ Visitor Visa
- ❑ Non-Status
- ❑ Blended Visa-office referred program # _____
- ❑ Other,_____

16. What was your immigration status when you first came to Canada? Check ONE only.

Model of Search

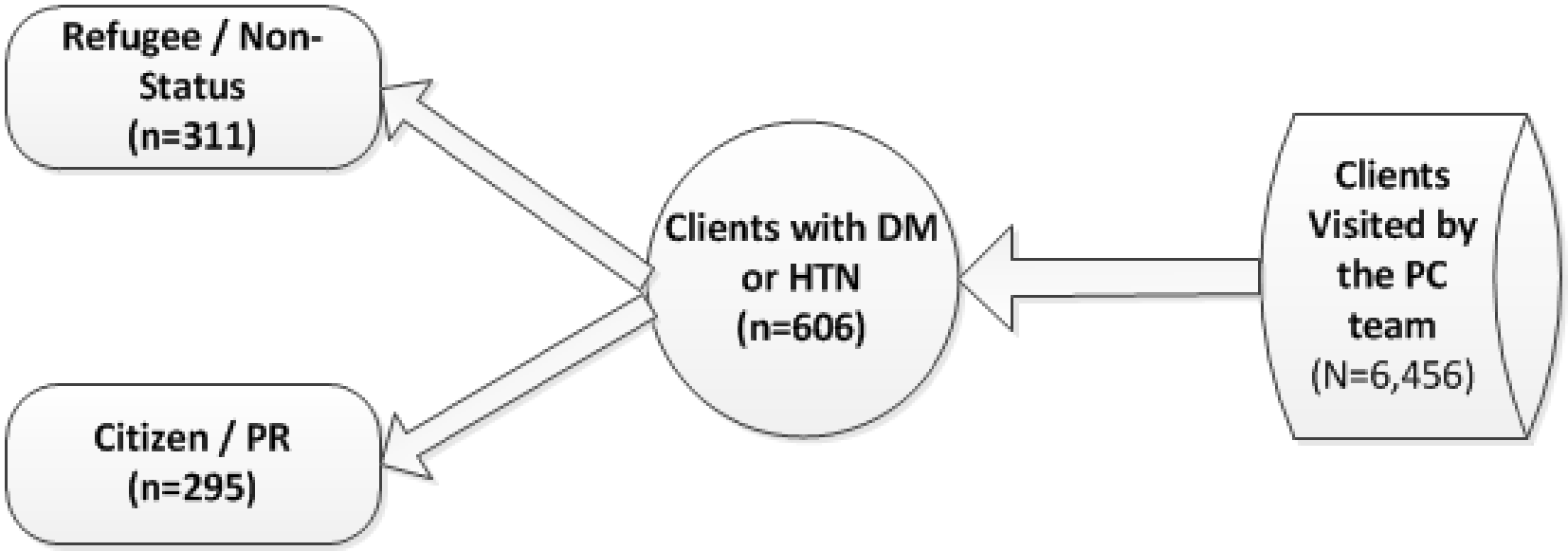
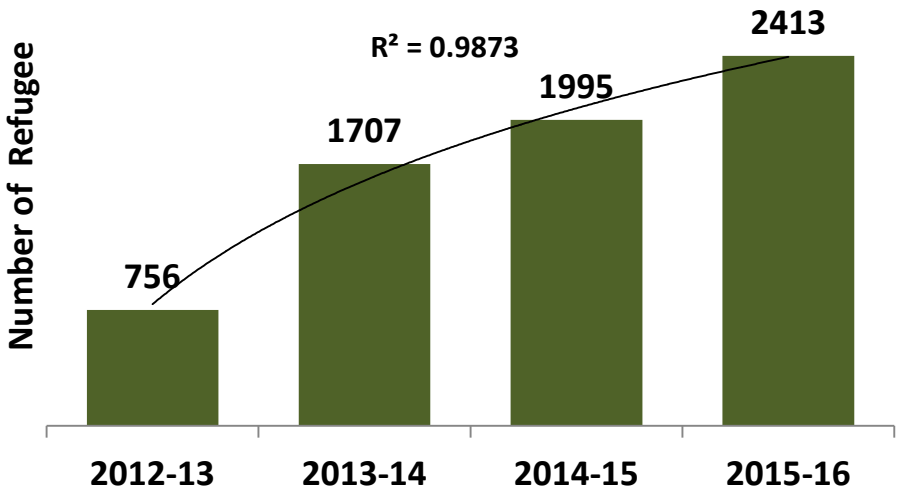


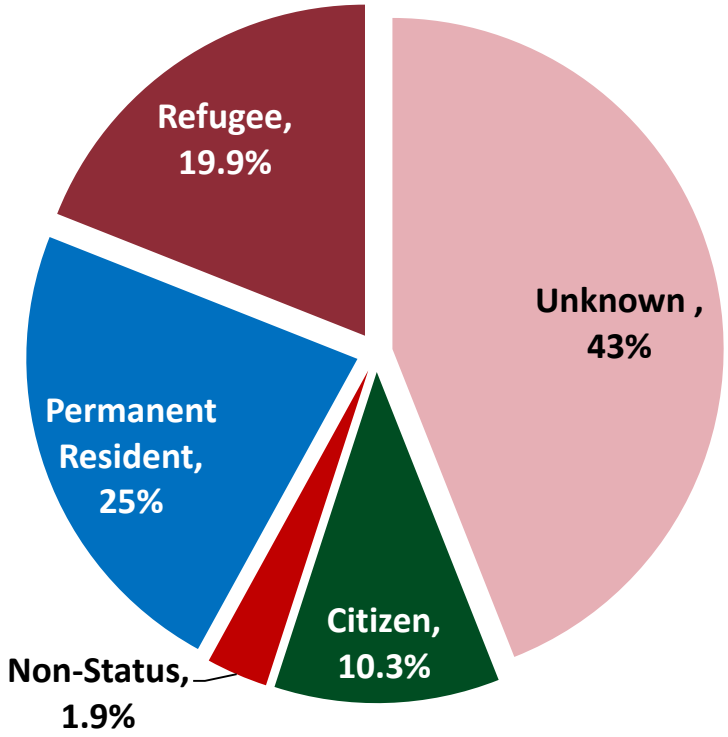
Chart review from NOD

- Retrospective comparative study with clients from the NOD database

- Limitations-
  - Transition of NOD versions and demographic indicators
  - Comorbidities for DM and HTN

Immigration Status of Clients





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Attributes of Refugee Clients with Hypertension & Diabetes

	Hypertension	Diabetes
Racial/Ethnic group White- Europeans Asian- South Latin American	 22.6% 17.9% 12.8%	 18.9% 18% 14.1%
Strength of relationship with Racial/Ethnic group	χ^2=40.7, df=15, p=0.000	χ^2=35.1, df=15, p=0.003
Clients did not reach guideline recommended targets	61.9%	60.9 %

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Distribution Statistics

Attributes	Overall (among clients seen by the PC team)	Refugees (among clients with chronic diseases)	Not Refugees (among clients with chronic diseases)	Remarks
Mean Age	33.9±18.2 years	53.6 ± 12.2 years	60.5 ±13.7 years	
Hypertension	6.0%%	35.7%	21.2%	χ^2= 50.1 df 1 p<0.01; ODDS ratio: 5.8 CI 3.5-9.6
Diabetes Mellitus	5.5%	21.5%	42.1%	χ^2= 29.1 df 1 p<0.01; ODDS ratio: 0.27 CI 0.17-0.44*

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Identified factors for compliance with the chronic disease management recommendations

Drivers for Clients with Hypertension	Statistic
Not having a second care provider	F= 47.3; p=0.000
Age in years	F= 5.7; p=0.018
Insurance status	F= 5.1; p=0.025

Drivers for Clients with Diabetes	Statistic
Not having a second care provider	F=10.8; p=0.001
Age in years	F=9.9; p=0.002
Insurance status	F= 6.2; p=0.013

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World Health Organization

- *Non-communicable diseases (NCDs), such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes, are the **leading cause of mortality** in the world…….*

- *The **burden is growing** - the number of people, families and communities afflicted is increasing……..*

- *The NCD threat can be **overcome using existing knowledge**. The solutions are highly cost-effective. Comprehensive and integrated action at country level, led by governments, is the means to achieve success.*

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Chronic disease risk



Biological
- age
- Family history
- Ethnicity
- Genetics
- Presence of associated conditions

Lifestyle
- Smoking
- BMI
- Physical activity level
- Food habit

Environment
- Pollution
- Chronic stress
- Safe communities
- Access to screening and health promotion

Social determinants
- Income levels
- Housing
- Education

Migration experience
- Region
- Internal displacement
- Exposure to trauma
- Access to screening and health care

Age- and sex-related prevalence of diabetes mellitus among immigrants to Ontario, Canada

Maria Isabella Creatore MSc, Rahim Moineddin PhD, Gillian Booth MD MSc, Doug H. Manuel MD, Marie DesMeules MSc, Sarah McDermott MSc, Richard H. Glazier MD MPH

Previously published at www.cmaj.ca

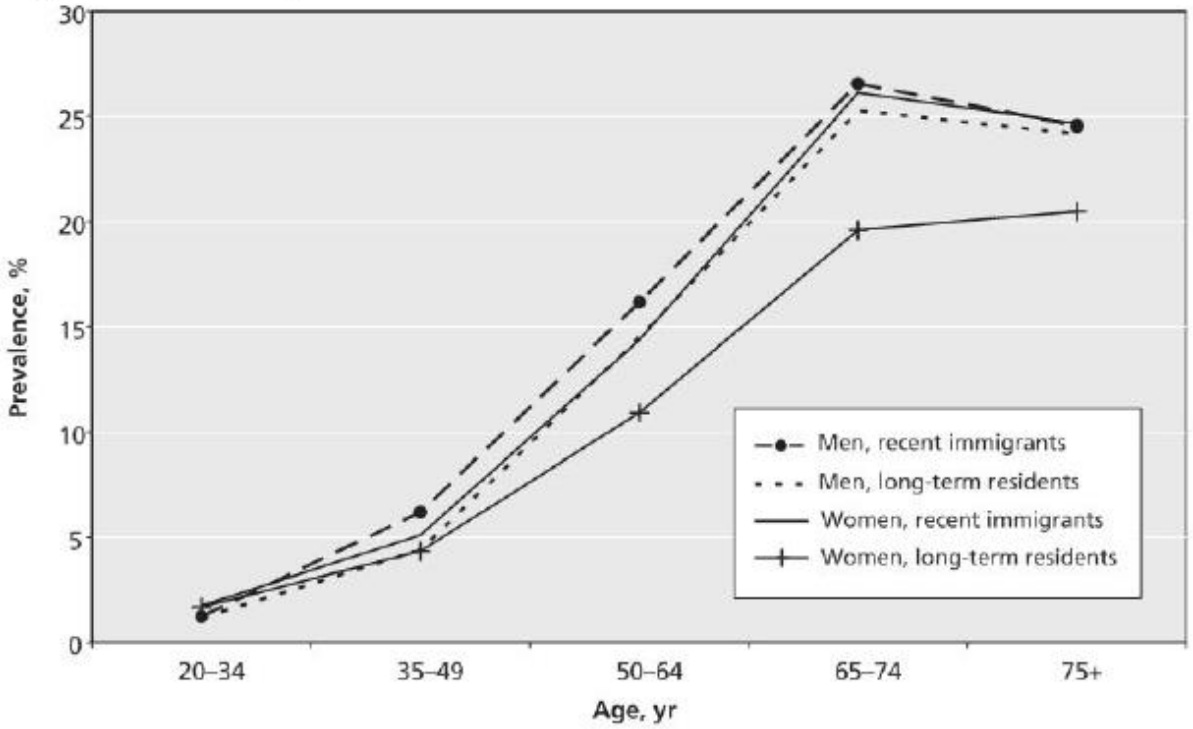
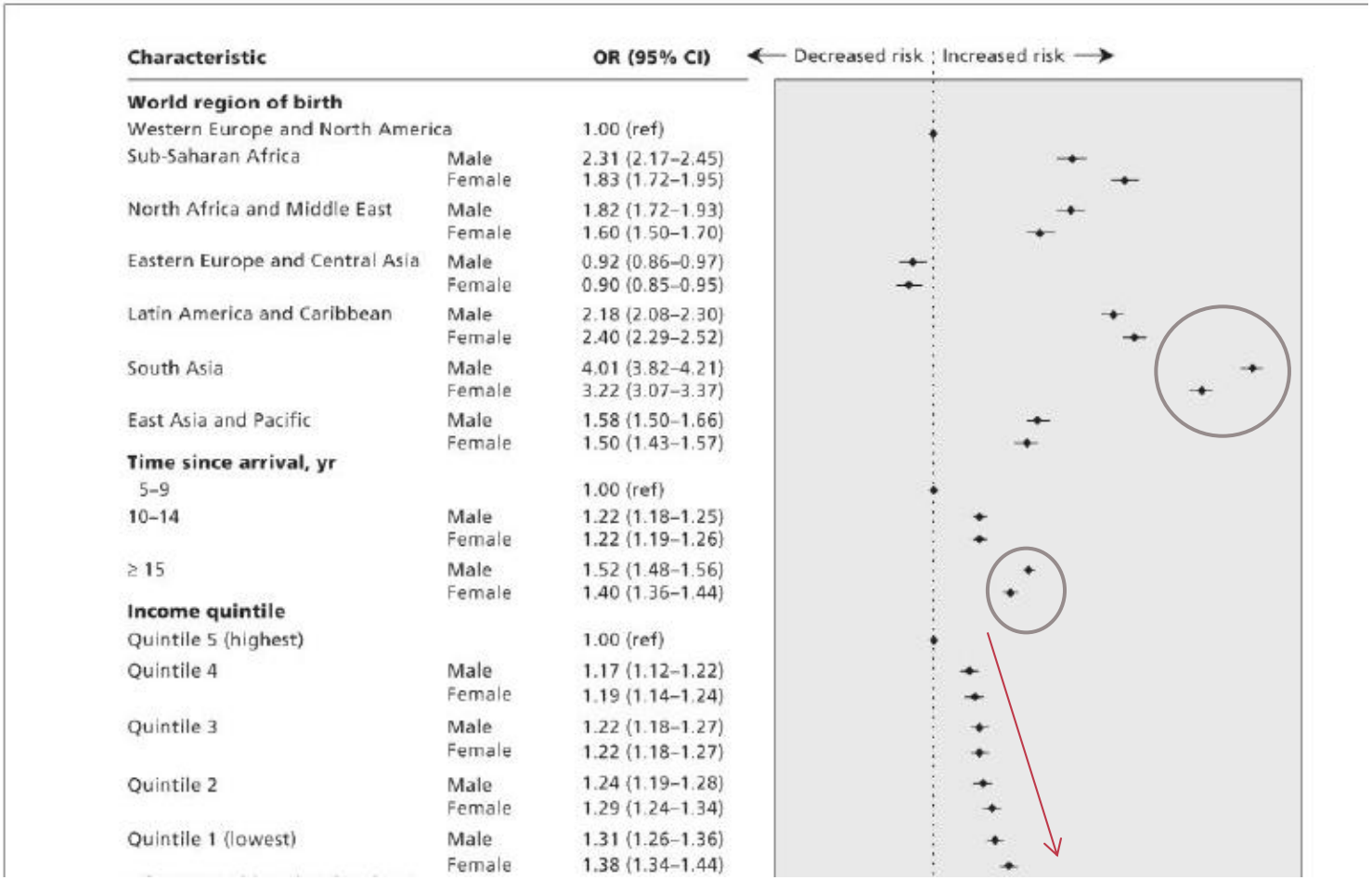


Figure. 3: Age-specific prevalence of diabetes in 2005 among recent immigrants to and long-term residents of Ontario, by sex.

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Age- and sex-related prevalence of diabetes mellitus among immigrants to Ontario, Canada

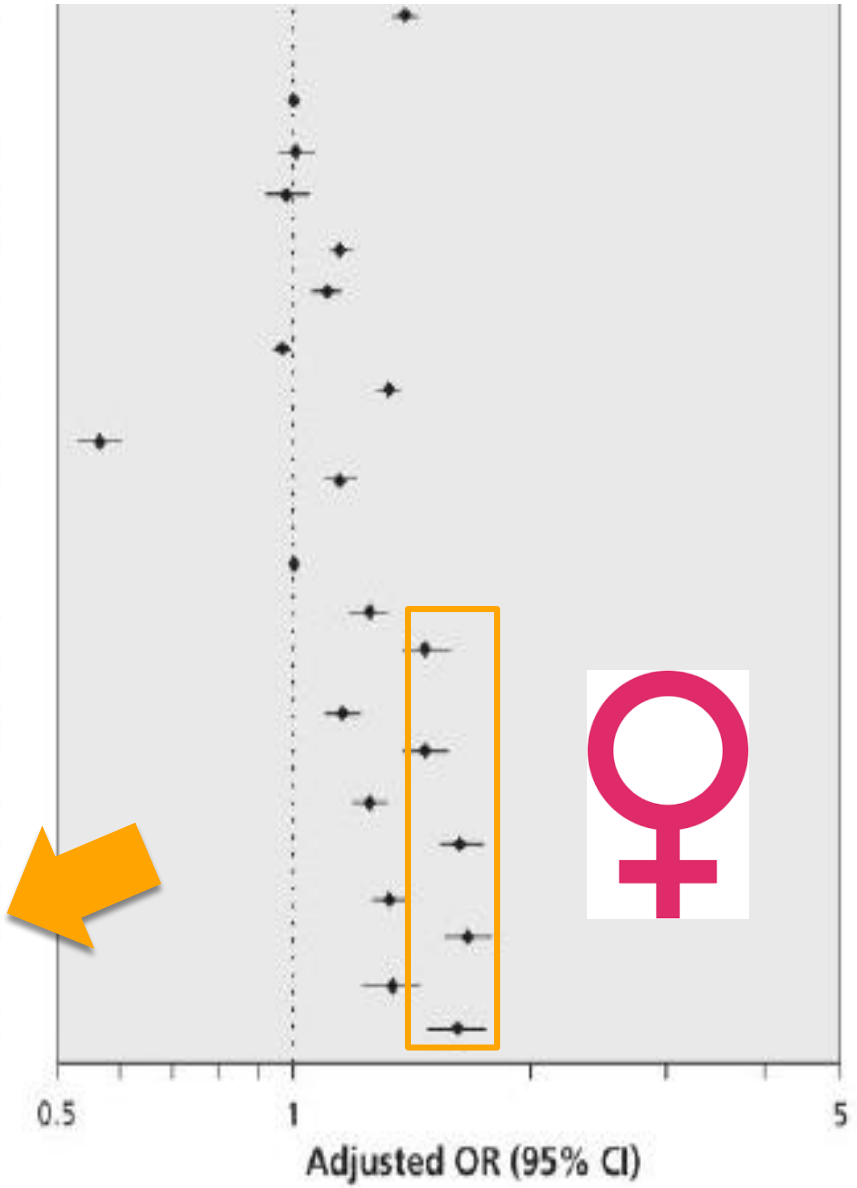
Maria Isabella Creatore MSc, Rahim Moineddin PhD, Gillian Booth MD MSc, Doug H. Manuel MD, Marie DesMeules MSc, Sarah McDermott MSc, Richard H. Glazier MD MPH



Characteristic		OR (95% CI)
World region of birth		
Western Europe and North America		1.00 (ref)
Sub-Saharan Africa	Male	2.31 (2.17–2.45)
	Female	1.83 (1.72–1.95)
North Africa and Middle East	Male	1.82 (1.72–1.93)
	Female	1.60 (1.50–1.70)
Eastern Europe and Central Asia	Male	0.92 (0.86–0.97)
	Female	0.90 (0.85–0.95)
Latin America and Caribbean	Male	2.18 (2.08–2.30)
	Female	2.40 (2.29–2.52)
South Asia	Male	4.01 (3.82–4.21)
	Female	3.22 (3.07–3.37)
East Asia and Pacific	Male	1.58 (1.50–1.66)
	Female	1.50 (1.43–1.57)
Time since arrival, yr		
5–9		1.00 (ref)
10–14	Male	1.22 (1.18–1.25)
	Female	1.22 (1.19–1.26)
≥ 15	Male	1.52 (1.48–1.56)
	Female	1.40 (1.36–1.44)
Income quintile		
Quintile 5 (highest)		1.00 (ref)
Quintile 4	Male	1.17 (1.12–1.22)
	Female	1.19 (1.14–1.24)
Quintile 3	Male	1.22 (1.18–1.27)
	Female	1.22 (1.18–1.27)
Quintile 2	Male	1.24 (1.19–1.28)
	Female	1.29 (1.24–1.34)
Quintile 1 (lowest)	Male	1.31 (1.26–1.36)
	Female	1.38 (1.34–1.44)

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	Female	1.38 (1.34–1.44)
Educational level at landing		
University degree or higher		1.00 (ref)
Some university	Male	1.01 (0.96–1.06)
	Female	0.98 (0.92–1.04)
Non-university qualifications	Male	1.14 (1.11–1.18)
	Female	1.10 (1.06–1.15)
Secondary level or less	Male	0.97 (0.94–0.99)
	Female	1.32 (1.28–1.37)
No education	Male	0.56 (0.53–0.60)
	Female	1.14 (1.09–1.20)
Immigration visa category		
Economic: business		1.00 (ref)
Economic: skilled, family	Male	1.25 (1.18–1.32)
	Female	1.47 (1.37–1.58)
Economic: skilled, independent	Male	1.15 (1.09–1.22)
	Female	1.47 (1.38–1.57)
Family	Male	1.25 (1.19–1.32)
	Female	1.63 (1.53–1.74)
Refugee	Male	1.32 (1.25–1.40)
	Female	1.67 (1.56–1.78)
Other	Male	1.33 (1.22–1.45)
	Female	1.61 (1.48–1.75)



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Subgroups at risk

- Seniors (aged 65 and over),
- Women
- low-income immigrants
- non-European immigrants

- Refugees

Health status of newly arrived refugees in Toronto, Ont

Part 2: chronic diseases

Vanessa J. Redditt MD CCFP Daniela Graziano MSc Praseedha Janakiram MD CCFP Meb Rashid MD CCFP

Table 3. Prevalence of elevated BP and impaired glycemic control in clinic patients 15 y and older

	ELEVATED BP (SBP ≥ 130 mm Hg OR DBP ≥ 85 mm Hg)			IMPAIRED GLYCEMIC CONTROL (FBG ≥ 6.1 mmol/L OR RBG ≥ 11.1 mmol/L OR HbA_{1c} ≥ 6%)		
VARIABLE	NO. OF POSITIVE RESULTS (NO. OF AVAILABLE RESULTS)	PREVALENCE, %	*P* VALUE	NO. OF POSITIVE RESULTS (NO. OF AVAILABLE RESULTS)	PREVALENCE, %	*P* VALUE
Total	219 (742)	30		58 (684)	8	
Sex			<.001			.10
• Male	119 (316)	38		30 (282)	11	
• Female	100 (426)	23		28 (402)	7	
Age group, y			<.001			<.001
• 15-29	35 (265)	13		4 (225)	2	
• 30-44	89 (329)	27		16 (320)	5	
• 45-59	66 (111)	59		23 (104)	22	
• ≥60	29 (37)	78		15 (35)	43	
Region[8]			<.001			.026
• Africa	72 (258)	28		16 (247)	6	
• Americas*	9 (50)	18		3 (47)	6	
• Asia†	22 (100)	22		6 (91)	7	
• Eastern Mediterranean	28 (124)	23		6 (114)	5	
• Europe	88 (210)	42		27 (185)	15	

7.3%

23.4%

47.7%

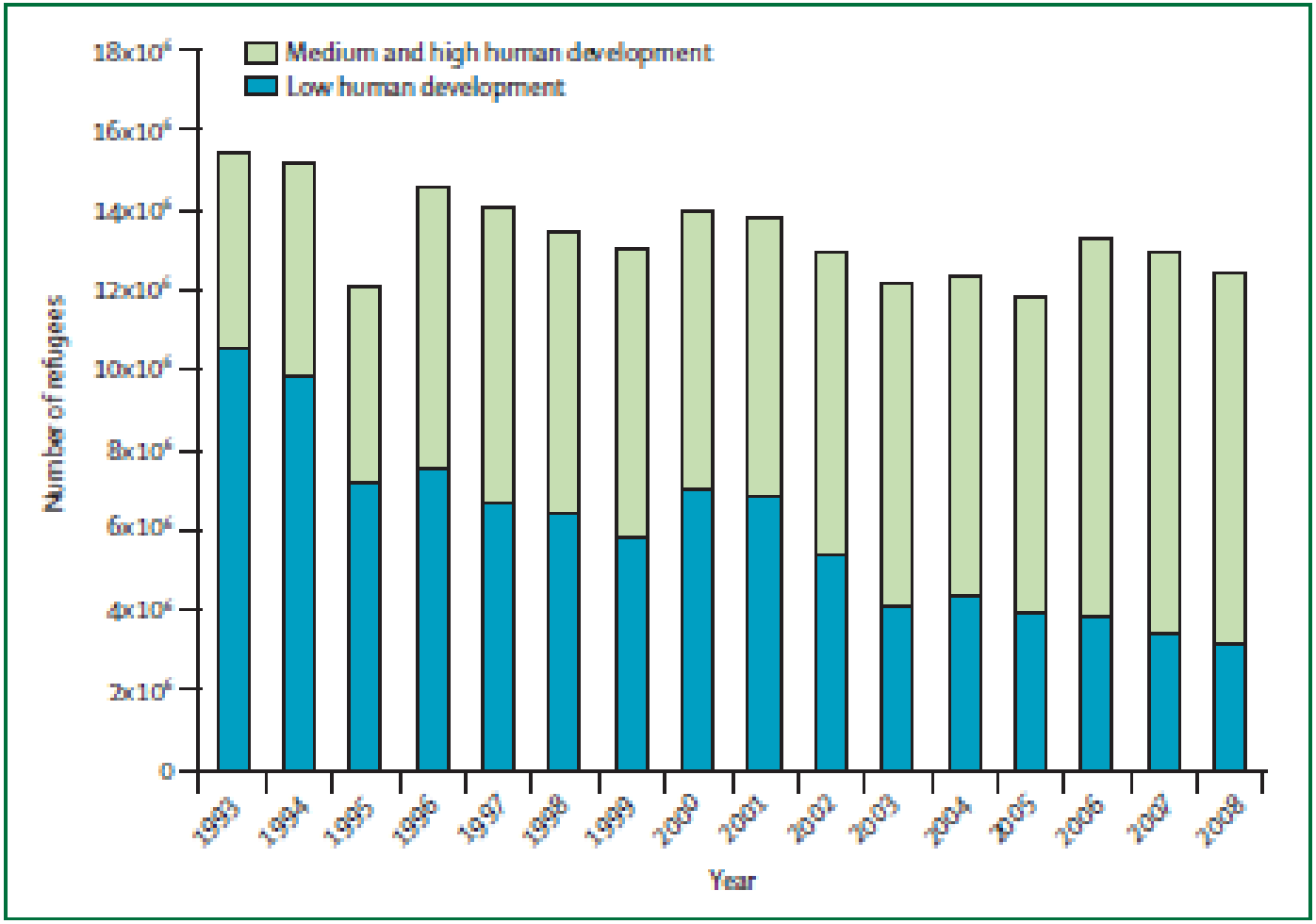
2.7%

8.5%

18.2%

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Refugee populations are changing



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High Prevalence Rates of Diabetes and Hypertension Among Refugee Psychiatric Patients

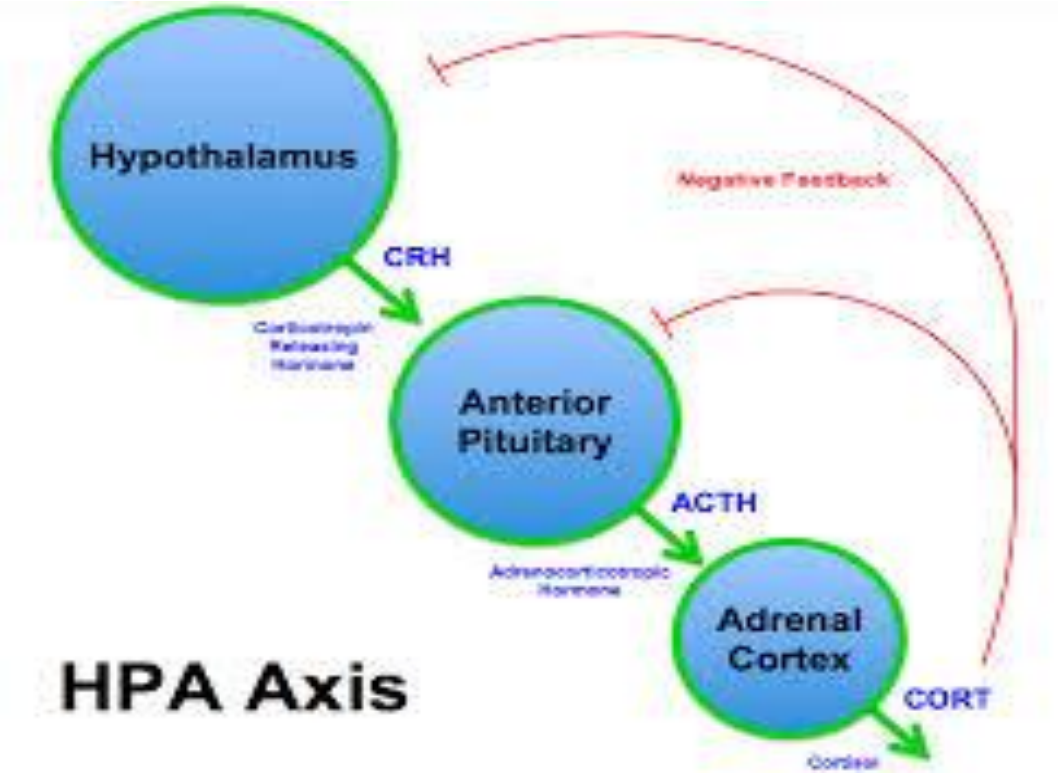
John David Kinzie, MD, Crystal Riley, MA,* Bentson McFarland, MD, PhD,* Meg Hayes, MD,† James Boehnlein, MD,* Paul Leung, MD,* and Greg Adams, MD‡*

TABLE 5. Percentage of Diabetes and Hypertension by Trauma Scores, Marital Status, and BMI

	Trauma Score		Marital Status		BMI		
	Low (0–3) $N = 213$	High (4–5) $N = 220$	Married or Coupled $N = 295$	Widowed or Divorced or Separated $N = 163$	Normal $N = 169$	Over-weight $N = 107$	Obese $N = 81$
% Hypertension	38	49	36.6	53.4	38.2	51.8	59.2
% Diabetes	11.4	21.1	12.6	21.3	12.4	17.4	25.9

- Found significantly higher rates of diabetes and hypertension in refugee psychiatric patients
  - Compared to US norms
  - Compared to regional prevalence

Biology-



- PTSD associated with obesity and metabolic syndrome
- Some Epidemiological studies show a link between PTSD and Diabetes
- Increased cortisol, increased insulin resistance, increase inflammatory markers

The importance of chronic disease to the health of refugees is under-recognized.

Lets start talking!



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Categories of refugees

- **Government assisted refugees**
  - Identified by UN and referred to participating countries and brought to Canada by the government
  - Transportation loans
  - RAP, IFH & OHIP
- **Privately sponsored refugees**
  - Identified by UN and sponsored by organizations or groups of citizens
  - OHIP, IFH
- **Refugee claimants**
  - Claim refugee status on arrival to Canada (within 30 days)
  - Eligibility of claim determined
  - IRB hearing and Appeal process
  - Irregular arrivals
  - IFH



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Case examples



M.A.

- Left Syria to Beirut 4 years ago
- Heart disease
- No medical care from 2 years before he left
- Sought out drivers going back to Syria for medications
- Initial blood work showed an A1c of 10.2%

S.M.

- Fled from Afghanistan to Pakistan with family because Taliban wanted to marry daughter
- Beaten and tortured when he refused
- Paid $$ for passage to Canada- when got on the plane, family not there
- Significant PTSD symptoms
- Untreated diabetes
- No health care for 3 months after arrival to Canada

Considerations for Refugees

- **Pre migration**
  - Cultural, geographic, health systems
- **Transition period**
  - Length of time, access to health care and medications, living conditions, lifestyle and culture of transition culture
- **Post migration**
  - Healthy immigrant effect, access to health care and medications, access to health promotion education,

Levels of social support and strength of social networks, both within refugee communities and between resettled refugees and the host community, are among the most critical factors in how both resettled refugees and refugee claimants integrate into Canadian society.

Ceris FINAL REPORT **Refugee Research Synthesis 2009 - 2013**

Othe oups







Non status

- Failed refugee claimants
- Expired visa
- Children of non status parents
- Implications for diagnosis and management?

Impact of poverty-

- **smoking rate** among the poorest people in Ontario is 22.1%, compared with 14.4% for the richest people, and 18.2% for Ontario overall.
- **physical inactivity rate** of 54.7% among the poorest people was substantially higher than among the richest people (32.1%), and 44.6% for Ontario overall.
- **Inadequate fruit and vegetable intake** among the poorest people in Ontario is 65.2%, compared with 56.7% for the richest people, and 60.8% for Ontario overall.

The poorest people in Ontario are nearly twice as likely to report having multiple chronic conditions as the richest people – 23.5% compared with 12.4%, and 16.2% for Ontario overall

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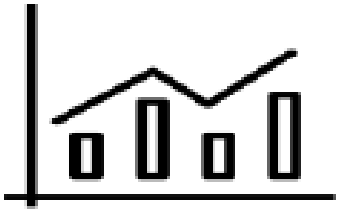
Rising Unemployment

1981 Unemployment rate for immigrants and Canadian-born: approximatively 8%.

2015 Unemployment rate for immigrants: 30% higher Canadian-born (6.9% vs

2 x Higher for recent im (10.9% vs 5.4%).

Increasing Low-Income Rate



The low-income rate for very rec immigrants rose from 1.4 times t the Canadian-born in 1980 to 2 times in 2005. Among long-term immigrants, the rate rose from 0.8 times to 1.9 times. During the same period, the rate for the Canadian-born declined from 17.2% to 13%.



Rising Income Disparity

In 2005, recent immigrant men and women earned 63% and 56% ely of the incomes earned ian-born men and women. these figures were 85% for and women.

Recent Immigrant Women Face The Worst Outcomes



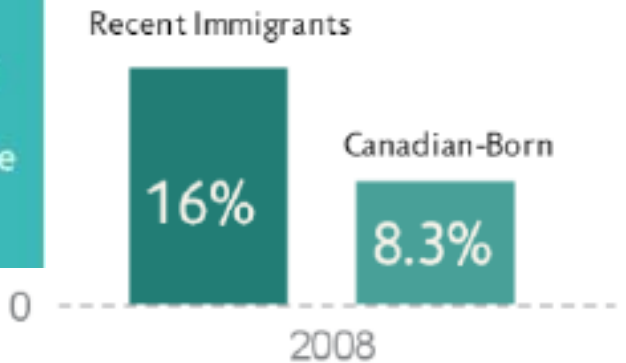
49% of all immigrant women work part-time compared to the 36% of all immigrant men.

3 x Recent immigrant women are working for minimum wage at almost 3x the rate of the total population.



vith

igh Rate of emporary Work



2 x Recent Immigrants more likely to work in temporary positions than their Canadian-born peers

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Specifically for refugees

- "**refugees tended to have the highest overall rates of unemployment** with men at 16.5% and women at 27.8% after four years in Canada. Skilled immigrants stood at 11.4% and 11.1% for male and female principal immigrants respectively at the 4 year point.

- **"Refugees faced the longest time periods on average before securing their first jobs** (8.8 months for male refugees and 17.1 months for female refugees)" compared to male skilled principal immigrants (3.5 months) and female skilled principal immigrants (4.2 months).

- "Four years after their landing, skilled worker principal applicants received the highest wages ($21.43 for males and $18.70 for females). **The groups who received the lowest wages at the 4 year point were female refugees ($9.63), female family class ($11.68) and male refugees ($12.03)."**

Barriers to healthy outcomes

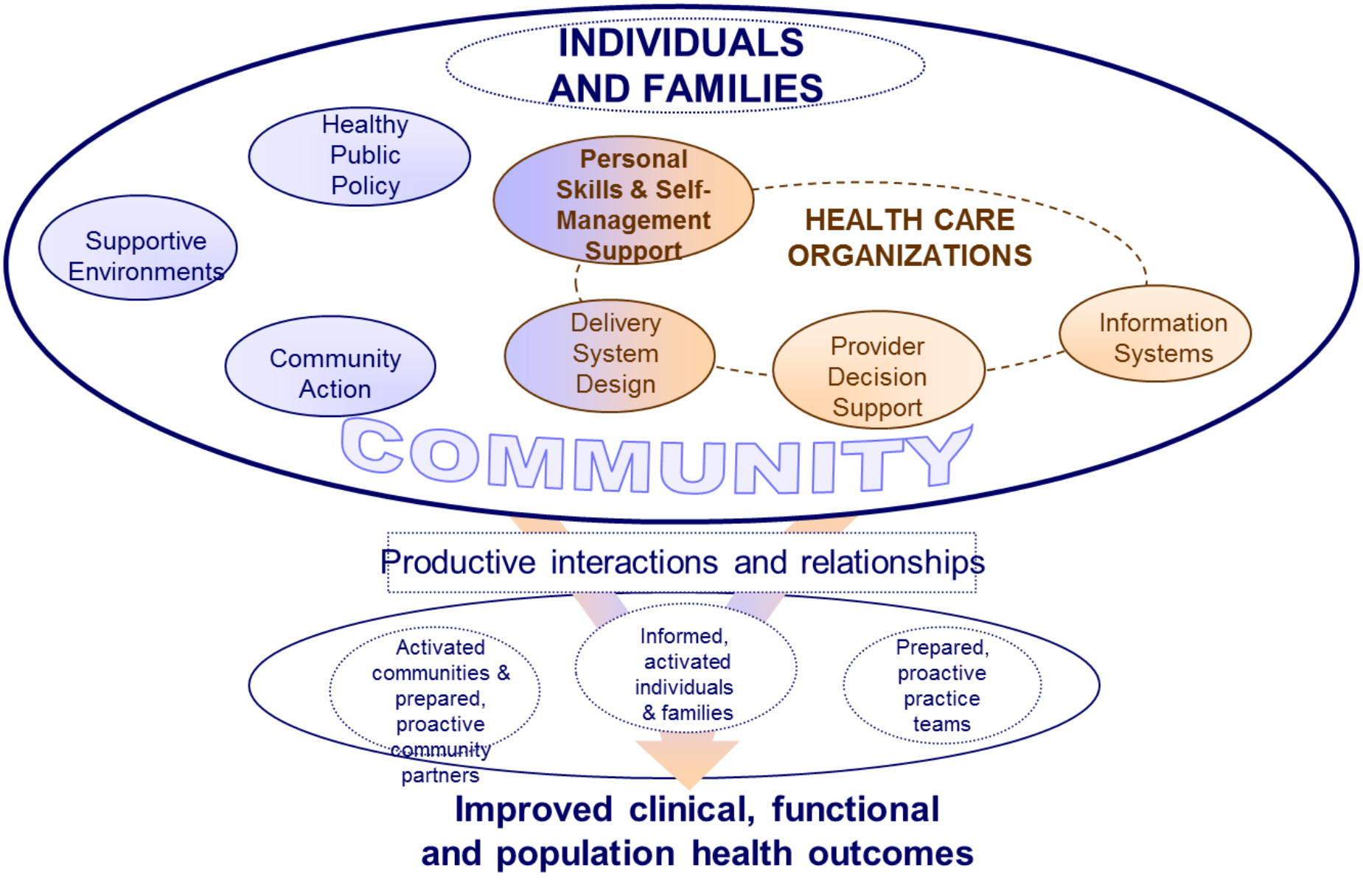
- Language
- Access to care
  - Lack of access to chronic disease prevention education- low income minorities
  - Inability to take time to access care
  - Lack of understanding/trust of the primary care system
- Medication coverage
- Mental health
- Different Explanatory models of illness- tradition vs biomedical
- Unmet expectations of health care system/providers

Refugees' Perceptions of Healthy Behaviors

Donelle M. Barnes1,3 and Nina Almasy2

- Exercise in leisure time
  - majority felt a reduction since migration especially in women
  - Lack of access to facilities
  - **Almost all (94%) agreed that they would be interested in an activity program for people who spoke their language**
- Smoking rates
  - Varying reports on smoking rates depending on country of origin
  - Majority of smokers increased they amount of smoking after arrival
  - Most common way to try to stop was "cold turkey"
- Healthy eating
  - 55% overweight, 61% felt they ate more fat due to fast food
  - Barriers to healthy eating included- loss of traditional food sources, cost, less time to cook meals

Ontario's CDPM Framework



Using the Chronic Care Model to improve health outcomes

- **Information systems:**
  - Better tracking and understanding of chronic disease in refugees both before and after they arrive at host country
    - Immigration status on arrival not often captured
    - Many studies based on self reported dx
    - Understanding burden of chronic disease among displaced people
- **Decision support**
  - Earlier and consistent screening for relevant chronic disease's and risk factors
    - guidelines and templates

Delivery Design

- Language services
  - Most frequently sited
  - Professionally trained medical interpreters in order to prevent miscommunication/emph asis affecting care
- Team composition
  - peers, mental health workers
- Culturally competent health promotion
  - diet, exercising
- Supporting health literacy
  - primary care systems, appointments, system navigation
- Supporting SDOH
  - health often not the biggest priority-Housing, employment, transportation

Self management

- Culturally competent messaging vital
- Key to self management helping people understand the “value add”

“Health promotion activities were of very secondary consideration compared with more basic issues of physical, mental and emotional survival”

Effectiveness of prevention programmes for obesity and chronic diseases among immigrants to developed countries – a systematic review

Andre MN Renzaho[1,*], David Mellor[2], Kelly Boulton[1] and Boyd Swinburn[1]

"Interventions that showed improvement had something in common:

*the application **of a cultural competence framework and cultural leverage**. That is, they used community participants' expertise and social structures both to define strategies for addressing culture-related factors and to shape the intervention"*

Small group discussions

- Share experiences in working with refugees or non status
- What was the impact of chronic illness on their health and ability to thrive?
- Describe examples of effective programming

Take home messages



- Chronic disease prevention and management is an important and under recognized topic in refugee health
- Being a refugee or a vulnerable immigrant should be considered a risk factor for chronic disease and screening practices should reflect that
- There is an important intersection between migration, income level and unemployment influencing chronic disease risk that needs to be explored
  - *Improved data collection on immigration status and other social determinants needed!*
- There are effective ways to mitigate obstacles in successful CDPM in refugee and vulnerable immigrant populations

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THANK YOU!