

Contextualizing models for chronic
care to improve care
for chronic conditions
in low- and middle-income countries:
the First Line Diabetes Care
(FiLDCare) Project

Grace Marie V. Ku

The Philippines



Chronic Conditions

- Eight out of top 10 causes of mortality
- Top 10 causes of morbidity:
 - 2004-2008: Hypertension (#4)
 - 2010: Hypertension (#4) and Diseases of the Heart (#10)

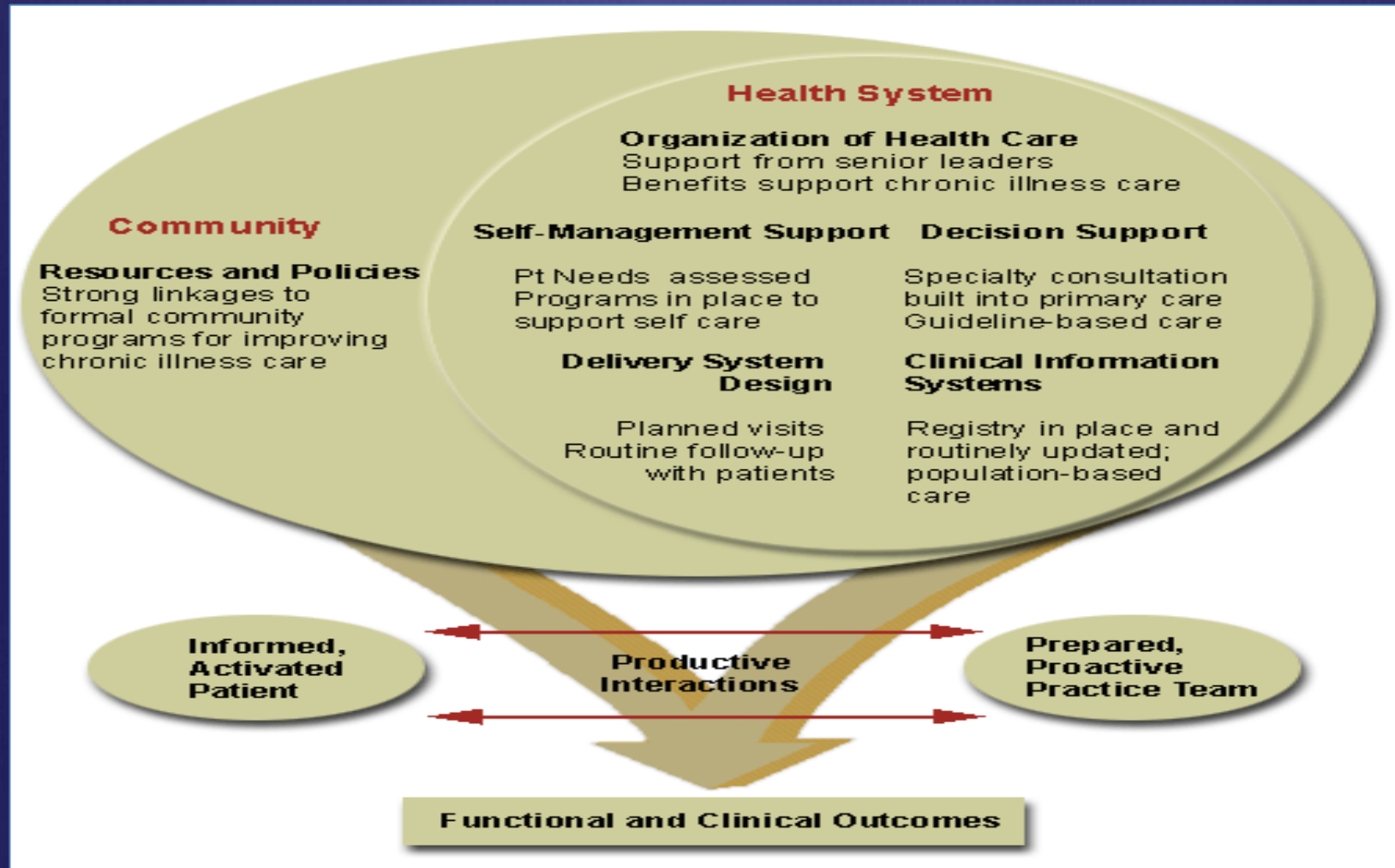
Diabetes Mellitus Type 2

- One of the top 10 countries worldwide predicted to have the highest numbers of DM2 by 2030 (Wild et al. 2004)
- Prevalence (newly diagnosed and known)
 - 2003 – 4.6%
 - 2008 – 7.2%

The Question

“Can the quality of care for chronic conditions in first line health services of LMICs be improved?”

Models for Chronic Care: Wagner's Chronic Care Model



General Objective

Provide evidence on how to improve the quality of chronic care in first line health services in the Philippines by

- adapting chronic care models to the context; and
- implementing applicable elements of a context-adapted chronic care model (CACCM)
- diabetes mellitus type 2 (DM2) as representative chronic condition

(the *FiLDCare* project)

How do we implement the solution?

Improving the quality of care for DM2 in primary care

Recipients of care

Care providers

Care
“financiers”

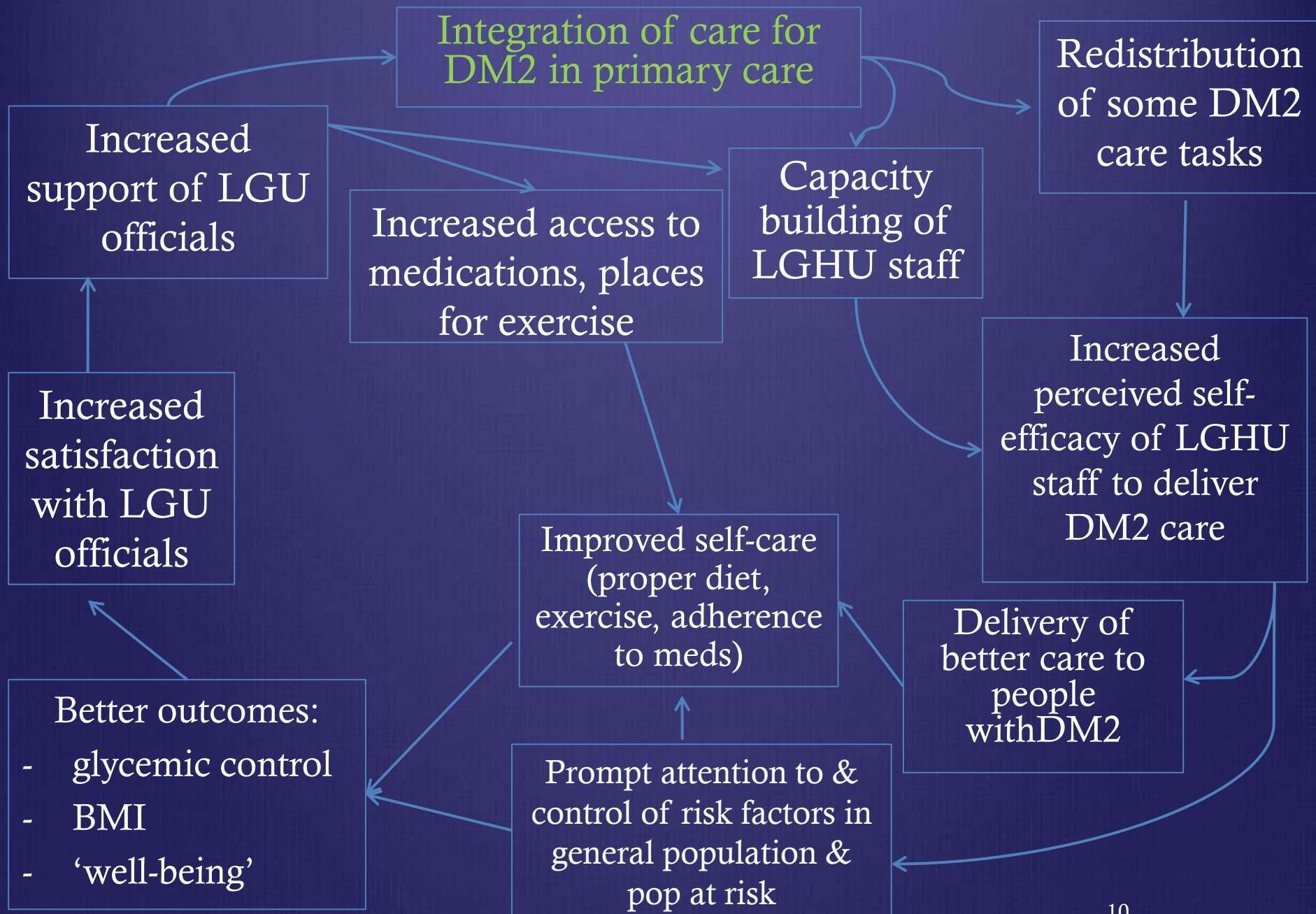
People with
DM2

Residents
of the LGU

LGHU staff

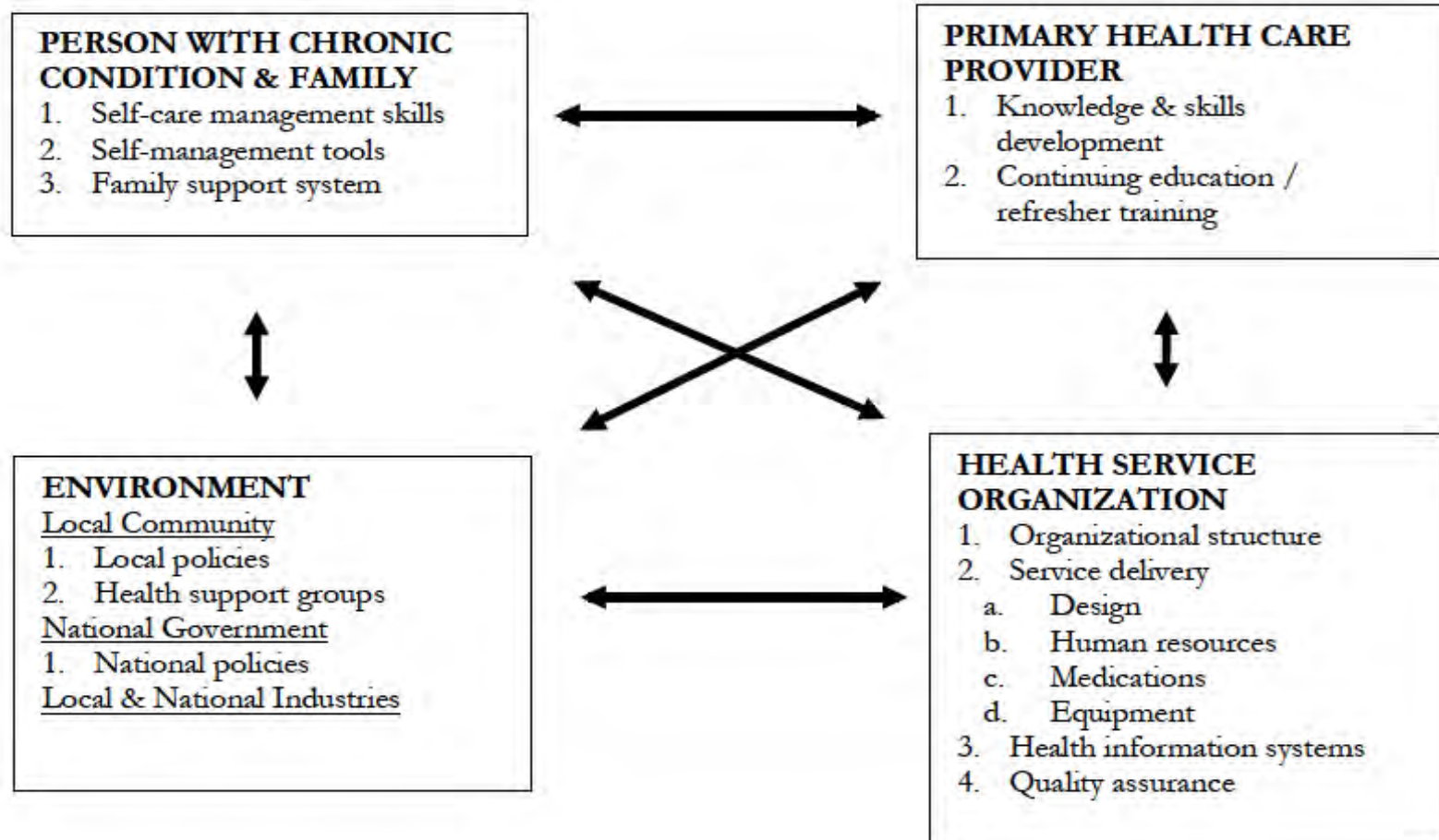
Local
government
officials

The “project theory”

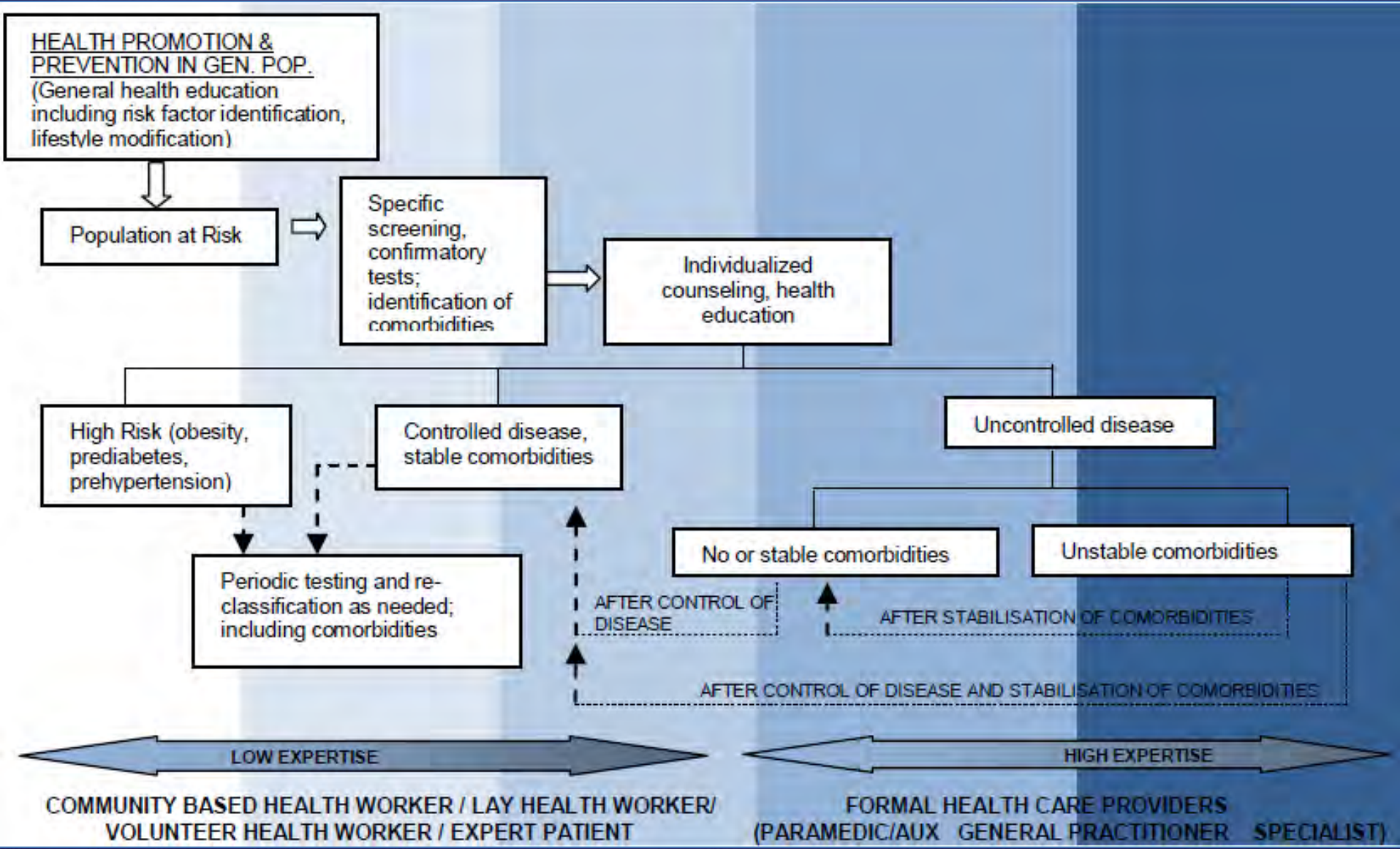


...and so, models for chronic care were adapted to the context.

The context-adapted chronic care model (CACCM)



The CACCM-based *service delivery model*



Selected chronic care elements
that were operationalized

Specific Objectives

1. Community sensitization, **health promotion** and **primary prevention**
2. **Decision support** to local government healthcare workers
3. **Reorganization** of the local government health services and **re-design** of health service delivery
4. **Patient enablement** towards self-management

1. Community sensitization, health promotion and primary prevention



1. Community sensitization, health promotion and primary prevention



1. Community sensitization, health promotion and primary prevention

DM2 prevalence

	All	Highly urbanized area (Quezon City)	Urban area (Batac City)	Rural areas (Vintar & Pagudpud)
DM type 2	7.11%	5.94%	8.67%	6.15%
Prediabetes	8.25%	8.74%	6.42%	8.81%

Σ : 14.68


Σ : 15.09

Σ : 14.96

The Finnish Diabetes Risk Score

- Diabetes risk predictor
- Pre-screening tool
→ *who should undergo blood glucose testing?*

Type 2 diabetes risk assessment form

1. Age <input type="checkbox"/> Under 45 years (0 p.) <input type="checkbox"/> 45–54 years (2 p.) <input type="checkbox"/> 55–64 years (3 p.) <input type="checkbox"/> Over 64 years (4 p.)		5. How often do you eat vegetables, fruit or berries? <input type="checkbox"/> Every day (0 p.) <input type="checkbox"/> Not every day (1 p.)											
2. Body-mass index (See reverse of form) <input type="checkbox"/> Lower than 25 kg/m ² (0 p.) <input type="checkbox"/> 25–30 kg/m ² (1 p.) <input type="checkbox"/> Higher than 30 kg/m ² (3 p.)		6. Have you ever taken medication for high blood pressure on regular basis? <input type="checkbox"/> No (0 p.) <input type="checkbox"/> Yes (2 p.)											
3. Waist circumference measured below the ribs (usually at the level of the navel) <table border="0"> <thead> <tr> <th>MEN</th><th>WOMEN</th></tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Less than 94 cm</td><td><input type="checkbox"/> Less than 80 cm (0 p.)</td></tr> <tr> <td><input type="checkbox"/> 94–102 cm</td><td><input type="checkbox"/> 80–88 cm (3 p.)</td></tr> <tr> <td><input type="checkbox"/> More than 102 cm</td><td><input type="checkbox"/> More than 88 cm (4 p.)</td></tr> </tbody> </table>		MEN	WOMEN	<input type="checkbox"/> Less than 94 cm	<input type="checkbox"/> Less than 80 cm (0 p.)	<input type="checkbox"/> 94–102 cm	<input type="checkbox"/> 80–88 cm (3 p.)	<input type="checkbox"/> More than 102 cm	<input type="checkbox"/> More than 88 cm (4 p.)	7. Have you ever been found to have high blood glucose (eg in a health examination, during an illness, during pregnancy)? <input type="checkbox"/> No (0 p.) <input type="checkbox"/> Yes (5 p.)			
MEN	WOMEN												
<input type="checkbox"/> Less than 94 cm	<input type="checkbox"/> Less than 80 cm (0 p.)												
<input type="checkbox"/> 94–102 cm	<input type="checkbox"/> 80–88 cm (3 p.)												
<input type="checkbox"/> More than 102 cm	<input type="checkbox"/> More than 88 cm (4 p.)												
		8. Have any of the members of your immediate family or other relatives been diagnosed with diabetes (type 1 or type 2)? <input type="checkbox"/> No (0 p.) <input type="checkbox"/> Yes: grandparent, aunt, uncle or first cousin (but no own parent, brother, sister or child) (3 p.) <input type="checkbox"/> Yes: parent, brother, sister or own child (5 p.)											
4. Do you usually have daily at least 30 minutes of physical activity at work and/or during leisure time (including normal daily activity)? <input type="checkbox"/> Yes (0 p.) <input type="checkbox"/> No (2 p.)		Total Risk Score <div style="border: 1px solid black; width: 30px; height: 30px; display: inline-block; margin-right: 5px;"></div> The risk of developing type 2 diabetes within 10 years is <table border="0"> <tbody> <tr> <td>Lower than 7</td><td>Low: estimated 1 in 100 will develop disease</td></tr> <tr> <td>7–11</td><td>Slightly elevated: estimated 1 in 25 will develop disease</td></tr> <tr> <td>12–14</td><td>Moderate: estimated 1 in 6 will develop disease</td></tr> <tr> <td>15–20</td><td>High: estimated 1 in 3 will develop disease</td></tr> <tr> <td>Higher than 20</td><td>Very high: estimated 1 in 2 will develop disease</td></tr> </tbody> </table>		Lower than 7	Low: estimated 1 in 100 will develop disease	7–11	Slightly elevated: estimated 1 in 25 will develop disease	12–14	Moderate: estimated 1 in 6 will develop disease	15–20	High: estimated 1 in 3 will develop disease	Higher than 20	Very high: estimated 1 in 2 will develop disease
Lower than 7	Low: estimated 1 in 100 will develop disease												
7–11	Slightly elevated: estimated 1 in 25 will develop disease												
12–14	Moderate: estimated 1 in 6 will develop disease												
15–20	High: estimated 1 in 3 will develop disease												
Higher than 20	Very high: estimated 1 in 2 will develop disease												

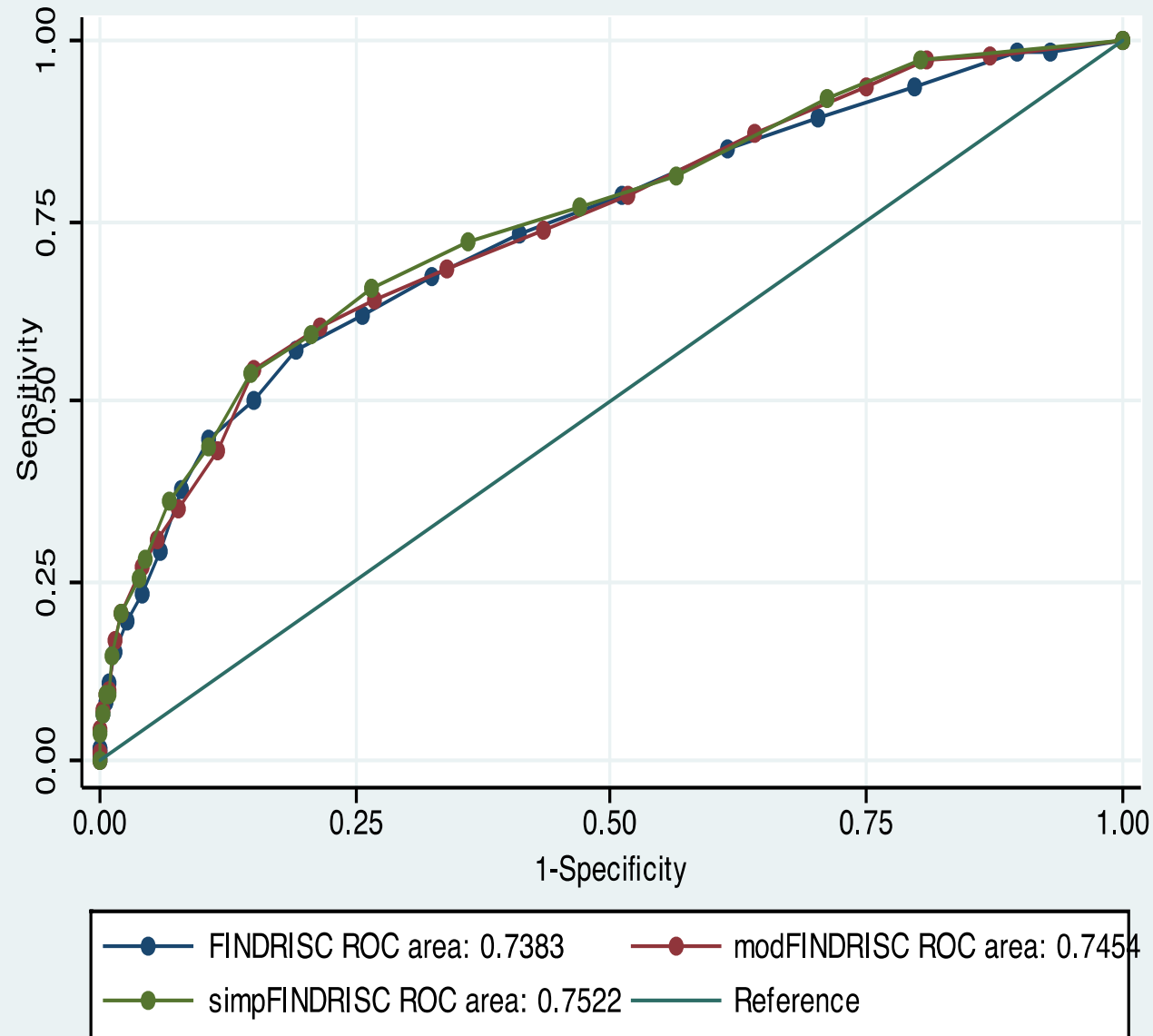
1. Community sensitization, health promotion and primary prevention

FINDRISC & MODIFICATIONS

“best compromise between sensitivity & specificity”

Simplified:

- Waist circumference
- Age
- History of
 - Hypertension
 - High blood sugar
 - Diabetes in the family



2. Decision support

- ⊗ skills pertinent to the enhancement of patient enablement towards self-management.
- ⊗ diabetes knowledge
- ⊗ primary diabetes care

2. *Decision support*

CONTENTS

A. Module 1: Interacting with people

- ① the biopsychosocial approach;
- ② active listening;
- ③ patient empowerment
- ④ family empowerment; and
- ⑤ social mobilization



2. Decision support

B. Module 2

Basic pathophysiology of diabetes and
current Philippine clinical practice guidelines on
the diagnosis and management of diabetes mellitus

2. *Decision support*

C. Module 3

lecture, demonstration and hands-on training on:

- ① anthropometric measurements (weight, height, waist and hip circumference)
- ② Anthropometric computations (body mass index, waist-hip ratio)
- ③ blood pressure determination
- ④ capillary blood glucose testing

+

interpretation of these anthropometric and clinical parameters following international guidelines and standards

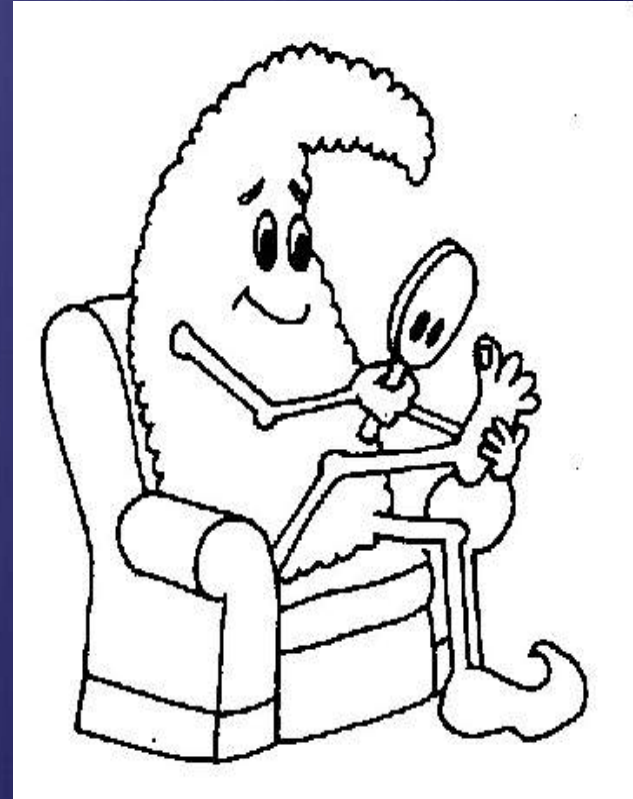
2. Decision support

D. Module 4

lecture on **foot care** and **foot care advice**

+

workshop on **foot examination** based on
international standards for foot care



2. Decision support

E. Module 5

lecture on the diabetes **diet**, **food exchanges** and **glycemic indices**

+

a workshop on **dietary counseling**



2. Decision support

E. Module 6



lecture on **exercise**

+

a workshop on **exercise counseling**

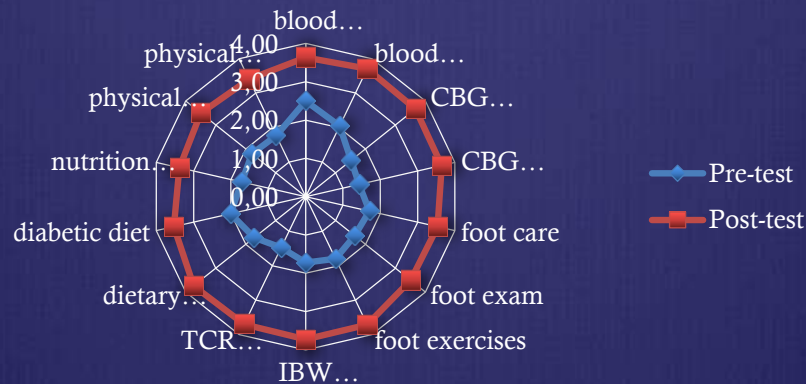
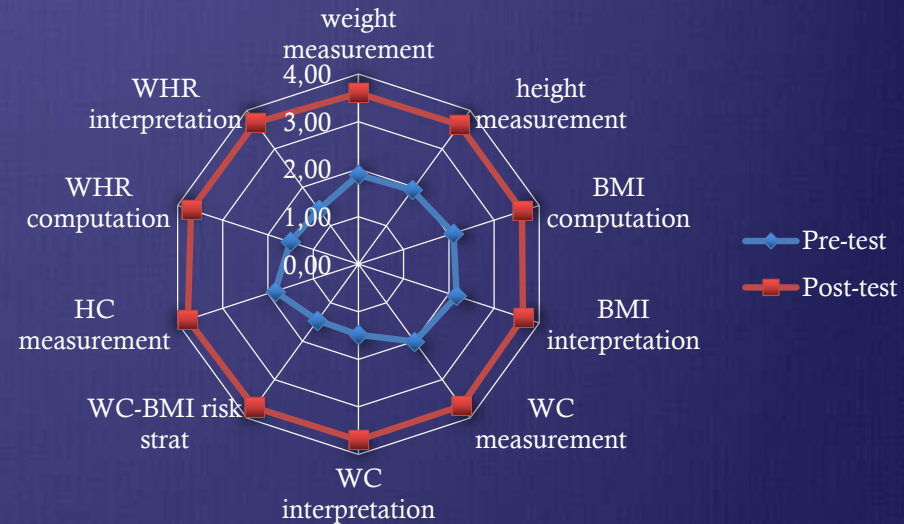
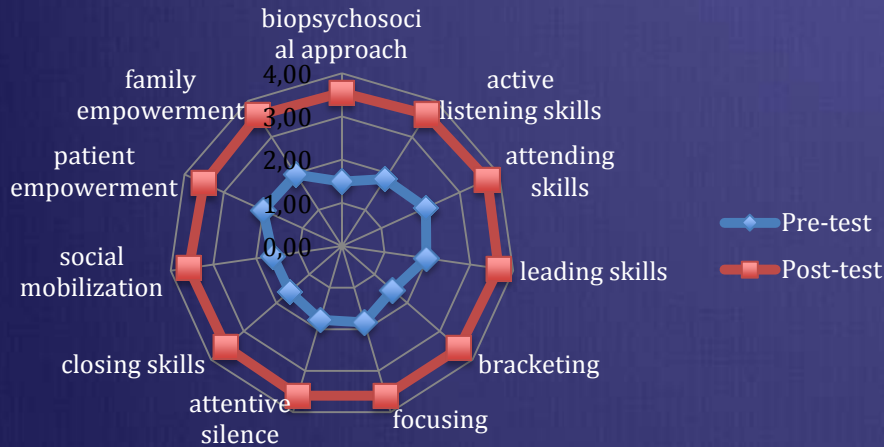
2. Decision support

Assessment learning

RESULTS

		All (n=110)		Formal healthcare workers (n=23)		BHW (n=87)	
		Median (confidence intervals)	Wilcoxon signed rank test p value	Median (confidence intervals)	Wilcoxon signed rank test p value	Median (confidence intervals)	Wilcoxon signed rank test p value
Diabetes knowledge test, % correct answers	Pre-test	54.2 (50.0-58.3)	<0.001	70.8 (66.7-75.0)	<0.001	45.8 (41.7-54.2)	<0.001
	Post-test	75.0 (70.8-78.3)		87.5 (79.2-87.8)		70.8 (66.7-75.0)	

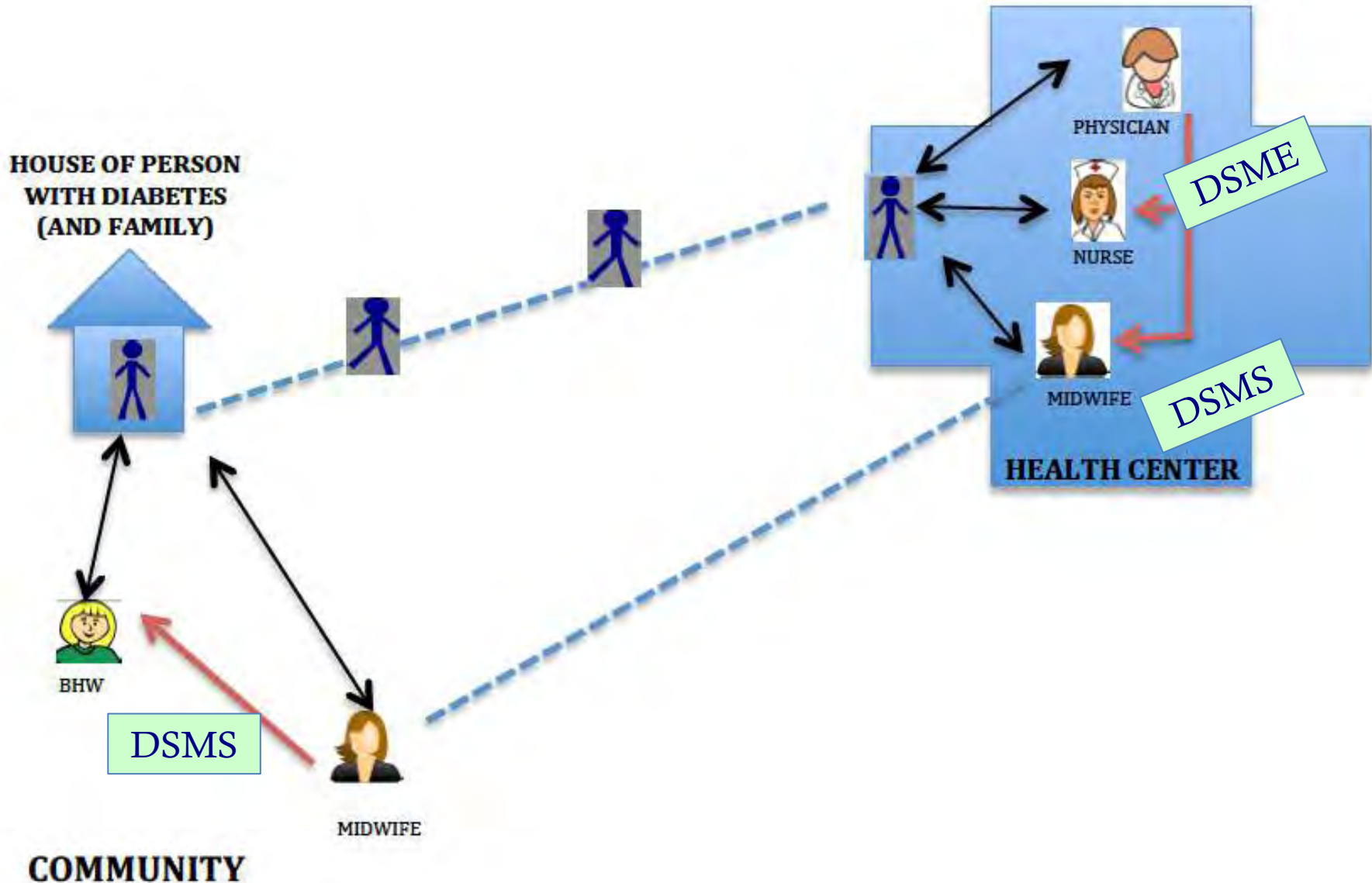
Self-assessment of Skills



3. Reorganization of the local government health services and re-design of health service delivery

- ⊗ creation of the **First Line Chronic Care Team**
- ⊗ **allocating specific (standardizable) tasks** to selected human resources

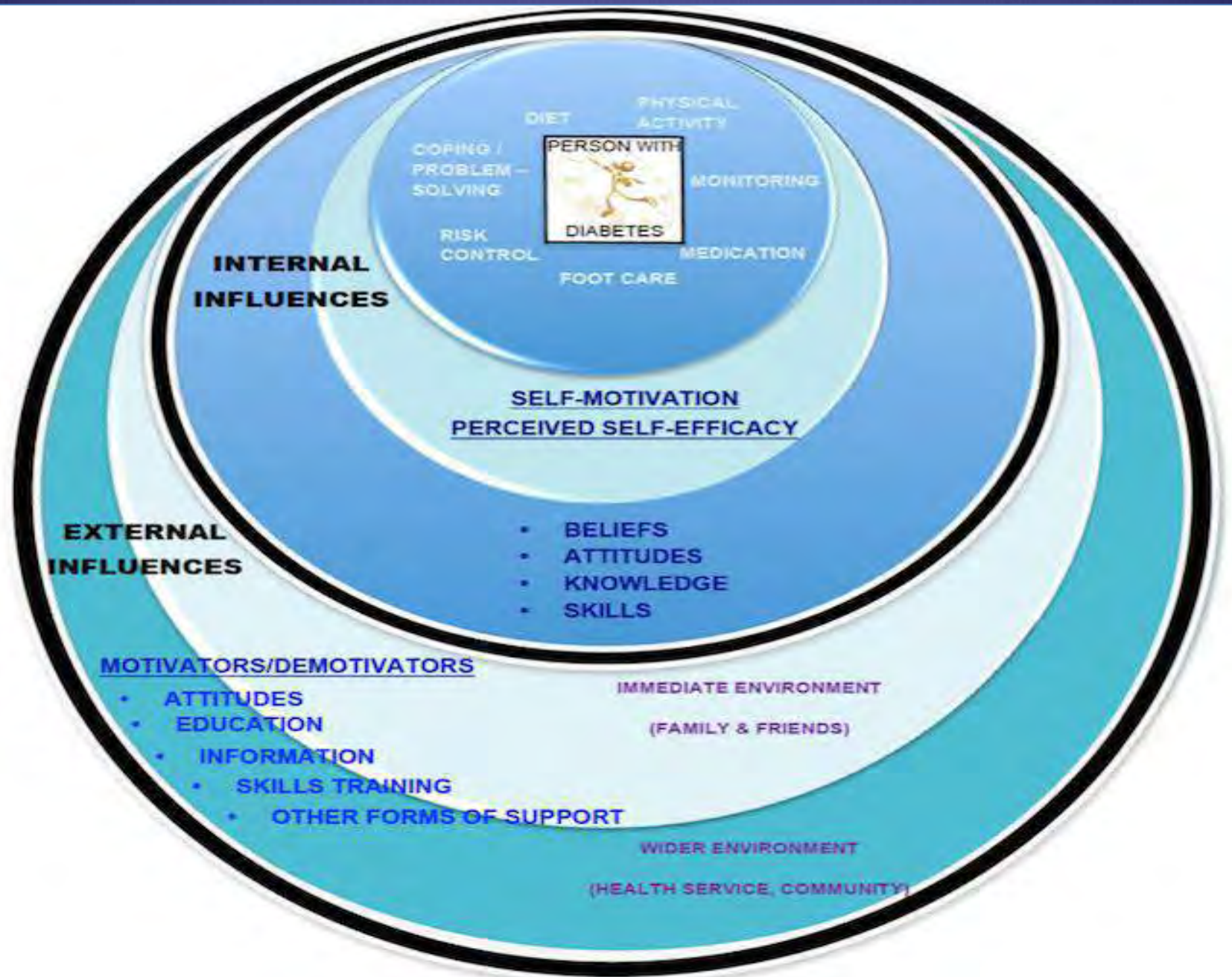
3. *Reorganization of the local government health services and re-design of health service delivery*



4. Patient enablement towards self-management

- ⊙ collaborative self-management education and support to people with diabetes in the selected communities

4. Patient enablement towards (full) self-management



One year after full
implementation of the
FiLDCare Project

THE FiLDCare PROJECT RESULTS

Variable	<u>Before</u> implementation	<u>After</u> implementation	P value	Change
	Median values, (binomial interpolation of confidence intervals)		Wilcoxon signed-rank test	Mean change
HbA1c , %	7.7 (7.2-8.2)	6.9 (6.8-7.5)	<0.001	-0.49
mmol/mol	61 (55-66)	52 (51-58)		-5.4
BMI, kg/m ²	23.7 (23.1-24.1)	23.3 (22.6-23.8)	0.075	-0.40
Waist circumference , in cm	85.0 (83.9-86.4)	83.0 (82.0-85.0)	0.007	-1.37
Waist-hip ratio	0.90 (0.89-0.91)	0.89 (0.88-0.90)	<0.001	-0.02

Also, increase in ...

- ⦿ Diabetes knowledge, $p < 0.001$
- ⦿ Perceived ability to control blood glucose, $p = 0.036$
- ⦿ Perceived ability to do the things needed to be done for diabetes, $p = 0.022$
- ⦿ Patient's assessment of chronic illness care, $p = 0.009$
- ⦿ Fear of diabetes, $p < 0.001$

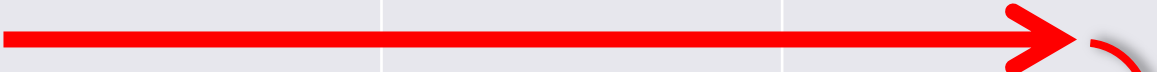



	N (proportion, %)		Test of proportions	Change n (%)
	Before	After		
Proportion adherent to <i>medications</i>	108 (65.9%)	134 (81.7%)	0.001	+26 (+15.8%)
Proportion adherent to <i>exercise regimen</i>	68 (41.5%)	110 (67.1%)	<0.001	+42 (+25.6%)
Proportion adherent to <i>prescribed diet</i>	99 (60.4%)	66 (40.2%)	<0.001	-33 (-20.2%)

THE FILDCARE PROJECT

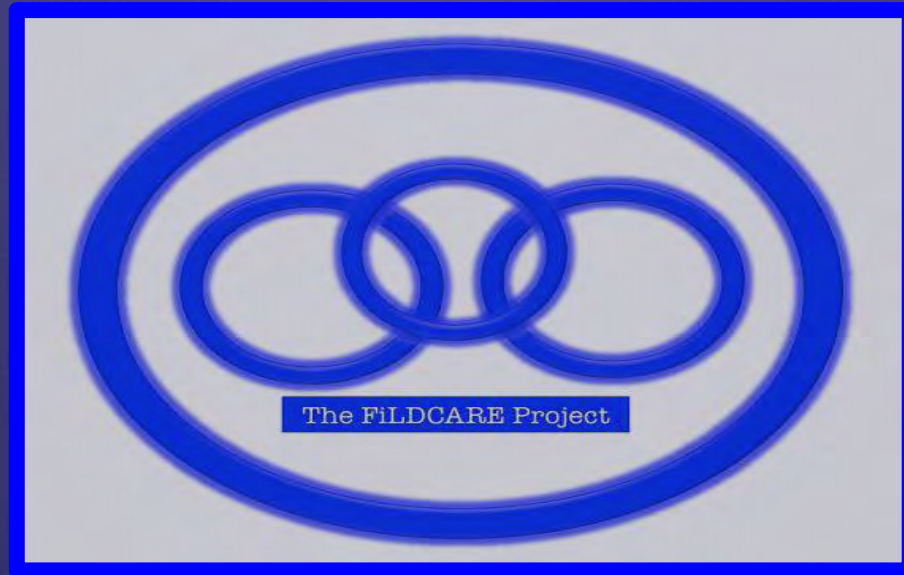
		<u>Pre-implementation</u>						Total (post- implemen- tation)
		Good control HbA1c<7%			Not in good control HbA1c≥7%			
Change in HbA1c		<i>decreased</i>	<i>increased</i>	<i>unchanged</i>	<i>decreased</i>	<i>increased</i>	<i>unchanged</i>	
<u>Post- implemen- tation</u>	Good control HbA1c<7%	35	17	6	25	0	0	(83)
	Not in good control HbA1c≥7%	0	3	0	39	32	7	(81)
<u>Total</u>		35	20	6	64	32	7	164
Pre-implementation		<div><div></div><div>61</div><div></div></div>			<div><div></div><div>103</div><div></div></div>			

Quo vadis?

→ PATIENT ENGAGEMENT & PERSON-CENTERED CARE

Levels	Continuum		
	Consultation & activation	Involvement	Shared leadership
Direct patient care			
Health service / health system organizational design and governance			
			
Policy-making			

Maraming salamat po!



<https://www.facebook.com/FILDCAREProject>