

Centre hospitalier UNILI universitaire vaudois Service de Néphrologie et Hypertension

Institut et Haute Ecole de la Santé La Source

Hypertension management in the Swiss primary care: protocol for the randomized controlled study Team-Based Care for Improving Hypertension (TBC-Hypertension study)

Faculté de biologie

et de médecine

### Prof. HES-SO Dr Valérie Santschi, PharmDipl, Ph.D

La Source, School of Nursing Sciences, University of Applied Sciences Western Switzerland, Lausanne, Switzerland Head of research, Service of Nephrology /Hypertension, Lausanne University Hospital, Lausanne, Switzerland

3rd Swiss Symposium on Health Services Research 2014 4 November 2014 Bern



ASSM 
Académie Suisse des Sciences Médicales

# Presentation plan TBC-Hypertension study

# From the context to the TBC-Hypertension study

- Hypertension care
- Impact of nonphysician healthcare professionnals in hypertension care
- Study presentation
  - A Team-Based Care for Improving Hypertension (TBC-Hypertension): A Randomized Controlled Study
  - Methodological challenges and responses
- Conclusions & perspectives







# Context

# Hypertension care

- HTA control suboptimal
  - 50% of treated patients with hypertension remain uncontrolled (Danon-Hersch Eur J Cardiovasc Prev Rehabil. 2009)
- Ageing population
- Limitation to access to primary care MD
   Heavy workload of primary care MD

- Recommendation of teambased care models to improve HTA control (2012 US Preventive Services Task Force)
  - Greater involvment of non
    physicians healthcare
    professionnals pharmacist
    and nurse

- provider of health services
- member of healthcare team (2012 US Preventive Services Task Force)







# Context

# TBC with pharmacist/nurse in ambulatory care

### Pharmacist

- Provides medication management in patient-to-MD interface
  - Therapy reviews of medications
  - Resolution of DRP
  - Patient counselling for each prescription
- Supports patients in drug intake
- Reinforces MD messages

### Nurse

- Provides care for patients and/or family
  - Education i.e on lifestyle
  - Prevention i.e. assessment of risk factors status (BP measurement)
- Assists patients to interpret health information
- Is in patient/family-to-MD and other healthcare professionals interface

### Pharmacist and nurse

- have skills and knowledge complementary to those of MD
- are a valuable asset in a team-based care of hypertension





### Context Impact of nonphysicians healthcare professionnals on HTA care

Results of recent systematic reviews with meta-analyses of randomized controlled trials evaluating the effect of pharmacist care and nurse-led care on hypertension care





#### 19 RCTs involving 10 479 participants

Α

Figure 2. Forest plots of the mean difference in systolic (A) and diastolic (B) blood pressure (BP) with the pharmacist care group compared with the usual care group. Cl indicates confidence interval.

Pharmacist Usual Care Favors Favors Mean Difference Source Care Group Pharmacist care Usual Care Weight, % (95% CI) Group Bogden et al.44 1998 -12.00 (-21.06 to -2.94) 49 46 3.46 Borenstein et al,45 2003 98 4.23 -11.00 (-18.60 to -3.40) 99 Carter et al.18 2008 101 78 5.57 -8.70 (-14.31 to -3.09) Carter et al.46 2009 7.23 192 210 -10.90 (-14.43 to -7.37) Chiu et al.26 2008 78 6.53 -12.80 (-17.19 to -8.41) 76 de Castro et al.47 2006 30 34 5.58 -2.00 (-7.60 to 3.60) Garcão and Cabrita.30 2002 41 41 2.48 -18.36 (-29.96 to -6.76) Green et al.31 2008 -6.00 (-9.35 to -2.65) 261 259 7.37 Hennessy et al,<sup>25</sup> 2006 3617 3542 8.87 -3.00 (-3.81 to -2.19) Hunt et al.48 2008 7.05 233 230 -6.00 (-9.75 to -2.25) Lee et al.32 2006 73 62 5.11 -8.90 (-15.14 to -2.66) McKenney et al,33 1973 24 25 2.86 -20.00 (-30.47 to -9.53) Mehos et al.34 2000 -10.10 (-20.62 to 0.42) 18 18 2.85 Okamoto and Nakahiro,36 2001 7.22 164 166 -7.80 (-11.34 to -4.26) Santschi et al.50 2008 3.71 34 34 -5.50 (-14.04 to 3.04) Solomon et al.<sup>51</sup> 1998 63 70 5.24 -6.40 (-12.46 to -0.34) Sookaneknun et al.39 2004 118 6.28 -4.65 (-9.35 to 0.05) 117 Vivian,42 2002 26 27 2.83 -14.40 (-24.96 to -3.84) Zillich et al.43 2005 64 61 5.54 -4.50 (-10.15 to 1.15) Total 5284 5195 100.00 -8.05 (-10.20 to -5.91) Test for hetergeneity:  $\chi^2 = 73.40$ , P < .001;  $I^2 = 75.5\%$ Test for overall effect: z=7.35, P <.001 -30 -20 -10 10 0

Mean Difference in Systolic BP, mm Hg

Santschi et al. Arch Intern Med 2011 Santschi et al. JAHA 2014 (update)

#### 11 RCTs involving 30 427 participants

Figure 2. Comparison of blood pressure control between nurse-led care and physician-led care. Studies are listed in order of decreasing weighted effect size. Abbreviations: mmHg = millimetres of mercury; SD = standard deviation; N = total number of patients in the analysis; WMD = weighted mean differences; CI = confidence interval; df = degrees of freedom;  $I^2$  = heterogeneity between trials; FUP = Follow-up; m = months. doi:10.1371/journal.pone.0089181.g002

ا Mean	Nurses SD	N			ns N	WMD (95% CI	% I), fixed Weight	WMD(95%CI)	FUP, m
ure, mmHg	g								
141.10	19.30	59	151.00	21.90	56		7.30	-9.90 (-17.46 to -2.34	) 6
150.10	20.40	102	155.70	24.80	82		9.40	-5.60 (-12.27 to 1.07)	14
128.70	22.22	102	133.10	19.02	104		13.10	-4.40 (-10.05 to 1.25)	6
137.00	16.33	256	141.00	17.91	308	-	52.10	-4.00 (-6.83 to -1.17)	12
137.00	17.14	211	139.00	17.14	64	•	18.10	-2.00 (-6.79 to 2.79)	6
		730			614	•	100	-4.27 (-6.31 to -2.23)	
	Mean 141.10 150.10 128.70 137.00	Mean         SD           ure, mmHg         141.10         19.30           150.10         20.40         128.70         22.22           137.00         16.33	ure, <b>mmHg</b> 141.10 19.30 59 150.10 20.40 102 128.70 22.22 102 137.00 16.33 256 137.00 17.14 211	Mean         SD         N         Mean           ure, mmHg         141.10         19.30         59         151.00           150.10         20.40         102         155.70           128.70         22.22         102         133.10           137.00         16.33         256         141.00           137.00         17.14         211         139.00	Mean         SD         N         Mean         SD           ure, mmHg         141.10         19.30         59         151.00         21.90           150.10         20.40         102         155.70         24.80           128.70         22.22         102         133.10         19.02           137.00         16.33         256         141.00         17.91           137.00         17.14         211         139.00         17.14	Mean         SD         N         Mean         SD         N           ure, mmHg         141.10         19.30         59         151.00         21.90         56           150.10         20.40         102         155.70         24.80         82           128.70         22.22         102         133.10         19.02         104           137.00         16.33         256         141.00         17.91         308           137.00         17.14         211         139.00         17.14         64	Mean         SD         N         Mean         SD         N         WMD (95% C           ure, mmHg         141.10         19.30         59         151.00         21.90         56            150.10         20.40         102         155.70         24.80         82            128.70         22.22         102         133.10         19.02         104            137.00         16.33         256         141.00         17.91         308            137.00         17.14         211         139.00         17.14         64	Mean         SD         N         Mean         SD         N         WMD (95% Cl), fixed         Weight           ure, mmHg         141.10         19.30         59         151.00         21.90         56          7.30           150.10         20.40         102         155.70         24.80         82          9.40           128.70         22.22         102         133.10         19.02         104          13.10           137.00         16.33         256         141.00         17.91         308          52.10           137.00         17.14         211         139.00         17.14         64          18.10	Mean         SD         N         Mean         SD         N         WMD (95% CI), fixed         Weight         WMD(95%CI)           ure, mmHg         141.10         19.30         59         151.00         21.90         56         -         7.30         -9.90 (-17.46 to -2.34)           150.10         20.40         102         155.70         24.80         82         -         9.40         -5.60 (-12.27 to 1.07)           128.70         22.22         102         133.10         19.02         104         -         13.10         -4.40 (-10.05 to 1.25)           137.00         16.33         256         141.00         17.91         308         -         18.10         -2.00 (-6.79 to 2.79)

Test for overall effect: Z = 4.10 (P < 0.0001)

### A Team-Based Care for Improving Hypertension (TBC-Hypertension): A Randomized Controlled Study

Principal investigators	Prof. HES-SO Dr Valérie Santschi, PharmDipl, PhD La Source, School of Nursing Sciences, University of Applied Sciences Western Switzerland Service of Nephrology/Hypertension, CHUV, Lausanne Prof. Dr med. Michel Burnier, MD Service of Nephrology/Hypertension, CHUV, Lausanne
Co-investigators	PD Dr med. Grégoire Wuerzner, MD, Service of Nephrology/Hypertension, CHUV, Lausanne PD Dr med. Arnaud Chiolero, MD, PhD, IUMSP, CHUV, Lausanne Prof. Dr med. Bernard Burnand, MD, MPH, IUMSP, CHUV, Lausanne Prof. Dr Lyne Cloutier, RN, PhD, UQTR, Canada Prof. Dr med. Gilles Paradis, MD, MSc, McGill University, Canada
Collaborators	Sylvie Tremblay, RN, Service of Nephrology/Hypertension, CHUV, Lausanne Prof. HES-SO Christine Cohen, RN, MSc La Source, School of Nursing Sciences, University of Applied Sciences Western Switzerland
Beginning of the study End of the study	01-08-2014 01-06-2017
Fundings/Support	<ul> <li>Swiss Society of Hypertension AstraZeneca Grant-in-Aid</li> <li>Seed-Money from the Swiss Academy of Medical Sciences (SAMW)-Health Services Research promotion program (Bangerter foundation)</li> <li>Bourse Promotion Académique des Femmes, FBM, UNIL (obtained but declined)</li> </ul>











# TBC-Hypertension study Research question

- Does a nurse-pharmacist-physician team-based care model of hypertension
  - improve BP control among treated uncontrolled hypertensive outpatients, compared with usual care group (care not involving nurse and pharmacist intervention)?







# TBC-Hypertension study Objectives

Among treated uncontrolled hypertensive outpatients,

# **Primary objective**

 determine the difference in BP (measured by daytime ABPM) at 6-month between TBC patients and UC patients

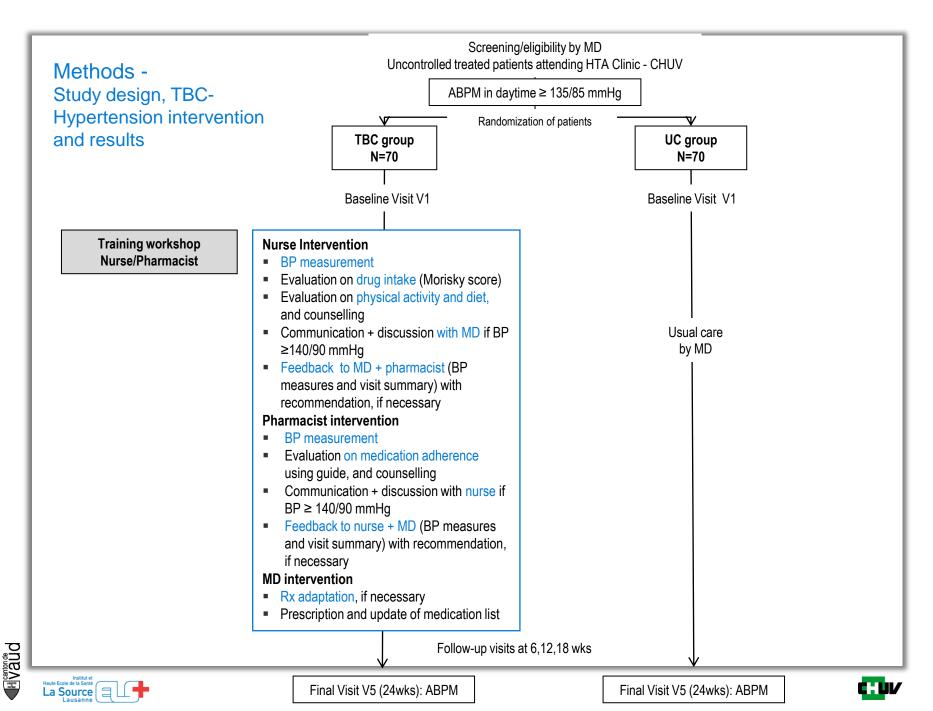
### Secondary objectives

- evaluate patients and healthcare professionnals (nurse/pharmacist/MD) satisfaction with TBC intervention
- determine the persistence of effect on BP at 12 months (i.e., 6 months after TBC intervention stopped)









# TBC-Hypertension study

# Preparation

#### Preparation

### Tools study

- Tools for TBC group
  - CRF MD-nurse / CRF pharmacist follow-up
  - Visit summary nurse (BP measurement drug intake, phsical activity, and diet) with recommendation, if ncessary
  - Visit summary pharmacist (BP measurement, PA, evaluation on medication adherence) with recommendation, if ncessary
  - Interview guide on medication adherence
  - «Livret de bord» for patient
  - «Aide-mémoire» for nurse / pharmacist follow-up
- Tools for UC group
  - CRF UC follow-up
- CER of the canton of Vaud
  - formation and consent form

### Preparation and animation Training workshop

- Development training workshop for nurse and pharmacist
  - Standardized BP measurement
  - Standardized hypertension care
  - Antihypertensive medication management (assessment of medication adherence)
  - Recommendations on physical activity and diet
  - Study requirements and TBC-intervention
- Animation of 2-hour workshop (May 2014)
  - multidisciplinary team (MD of the HTA Clinic, researchers of la Source and IUMSP and nurse of la Source)







# **TBC-Hypertension study**

Methodological challenges and responses

### Methodological challenges

- Poor culture of interprofessionnal teamwork in Switzerland
  - implementation of interprofessional teamwork takes time, respect and knowledge of each healthcare professionnals

### Responses

- Interprofessional team to develop research protocol TBC-Hypertension
- Interprofessional education
  - FBM-Unil/La Source (02–04. 2015) for students in medicine and nursing
    - course «Hypertension and medication adherence in clinical practice: which challenges for healthcare professionals?»
  - Journées interprofessionnelles FBM Unil/HES-SO for students in medicine and filières en soins (i.e. nursing, physiothérapeuthes, sages femmes, TRM)







# **TBC-Hypertension study**

Methodological challenges and responses

### Methodological challenges

- Organisational context in which healthcare professional works in Switzerland
  - Community pharmacist
  - Transmission of clinical data

### Responses

- Nurse coordinator with «rôle pivot»
- Development and implementation
  - easy tools for communication patient/healthcare professionnal and between different healthcare professionals
  - electronic plateform for transmission of clinical data







# TBC-Hypertension study Conclusions & perspectives

### Improving the management of hypertension

- is a major clinical challenge regarding the ageing population
- need a new approach to organize and manage hypertension in the Swiss primary care by further integration of pharmacist and nurse
- Pharmacist and nurse in collaboration with MD can help the management of hypertension in ambulatory care
- We need to do now is implement and evaluate it in Switzerland







Thank you for your attention

# Prof. HES-SO Dr Valérie Santschi, PharmDipl, PhD

v.santschi@ecolelasource.ch valerie.santschi@chuv.ch





