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

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
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 team-based care models to improve HTA control
  (2012 US Preventive Services Task Force)

- Greater involvement of non-physicians healthcare professionals - 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
Comparison of pharmacist care – alone or via TBC – compared usual care group

19 RCTs involving 10 479 participants

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. CI indicates confidence interval.
Comparison of BP control between nurse-led and physician-led care

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; I² = heterogeneity between trials; FUP = Follow-up; m = months. doi:10.1371/journal.pone.0089181.g002

<table>
<thead>
<tr>
<th>Study</th>
<th>Nurses Mean</th>
<th>Nurses SD</th>
<th>Nurses N</th>
<th>Physicians Mean</th>
<th>Physicians SD</th>
<th>Physicians N</th>
<th>WMD (95% CI), fixed</th>
<th>% Weight</th>
<th>WMD(95% CI)</th>
<th>FUP, m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic Blood Pressure, mmHg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denver, 2003</td>
<td>141.10</td>
<td>19.30</td>
<td>59</td>
<td>151.00</td>
<td>21.90</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td>7.30</td>
</tr>
<tr>
<td>Houweling, 2011</td>
<td>150.10</td>
<td>20.40</td>
<td>102</td>
<td>155.70</td>
<td>24.80</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td>9.40</td>
</tr>
<tr>
<td>Hiss, 2007</td>
<td>128.70</td>
<td>22.22</td>
<td>102</td>
<td>133.10</td>
<td>19.02</td>
<td>104</td>
<td></td>
<td></td>
<td></td>
<td>13.10</td>
</tr>
<tr>
<td>Voogdt-Pruis, 2010</td>
<td>137.00</td>
<td>16.33</td>
<td>256</td>
<td>141.00</td>
<td>17.91</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
<td>52.10</td>
</tr>
<tr>
<td>Mundinger, 2000</td>
<td>137.00</td>
<td>17.14</td>
<td>211</td>
<td>139.00</td>
<td>17.14</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td>18.10</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>730</strong></td>
<td><strong>614</strong></td>
<td></td>
<td><strong>614</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>100</strong></td>
<td><strong>-4.27</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Heterogeneity: Chi² = 3.18, df = 4 (P = 0.53); I² = 0%
Test for overall effect: Z = 4.10 (P < 0.0001)

Martinez-Gonzalez et al. Plos One 2014
# 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 | 01-08-2014 |
| End of the study       | 01-06-2017 |
| Fundings/Support       | • Swiss Society of Hypertension AstraZeneca Grant-in-Aid  
• Seed-Money from the Swiss Academy of Medical Sciences (SAMW)-Health Services Research promotion program (Bangerter foundation)  
• Bourse Promotion Académique des Femmes, FBM, UNIL (obtained but declined) |
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)
Methods - Study design, TBC-Hypertension intervention and results

Screening/eligibility by MD
Uncontrolled treated patients attending HTA Clinic - CHUV

ABPM in daytime ≥ 135/85 mmHg

Randomization of patients

TBC group
N=70

Baseline Visit V1

UC group
N=70

Baseline Visit V1

Training workshop Nurse/Pharmacist

Nurse Intervention
- BP measurement
- Evaluation on drug intake (Morisky score)
- Evaluation on physical activity and diet, and counselling
- Communication + discussion with MD if BP ≥140/90 mmHg
- Feedback to MD + pharmacist (BP measures and visit summary) with recommendation, if necessary

Pharmacist intervention
- BP measurement
- Evaluation on medication adherence using guide, and counselling
- Communication + discussion with nurse if BP ≥ 140/90 mmHg
- Feedback to nurse + MD (BP measures and visit summary) with recommendation, if necessary

MD intervention
- Rx adaptation, if necessary
- Prescription and update of medication list

Follow-up visits at 6,12,18 wks

Nurse/Pharmacist

Usual care by MD

Final Visit V5 (24wks): ABPM
TBC-Hypertension study

Preparation

Tools study

- Tools for TBC group
  - CRF MD-nurse / CRF pharmacist follow-up
  - Visit summary – nurse (BP measurement drug intake, physical activity, and diet) with recommendation, if necessary
  - Visit summary – pharmacist (BP measurement, PA, evaluation on medication adherence) with recommendation, if necessary
  - 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)
Methodological challenges

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

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

<table>
<thead>
<tr>
<th>Methodological challenges</th>
<th>Responses</th>
</tr>
</thead>
</table>
| - Organisational context in which healthcare professional works in Switzerland  
  - Community pharmacist  
  - Transmission of clinical data |  
  - Nurse coordinator with «rôle pivot»  
  - Development and implementation  
  - easy tools for communication patient/healthcare professionnel and between different healthcare professionals  
  - electronic plateform for transmission of clinical data |
Improving the management of hypertension is a major clinical challenge regarding the ageing population. We 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.

TBC-Hypertension study

Conclusions & perspectives
Thank you for your attention

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

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