Secondary Prevention
The ELIPS trial and beyond
I don’t have any conflict of interest for this presentation
ACS: a poor prognosis

<table>
<thead>
<tr>
<th></th>
<th>STEMI</th>
<th>NSTEMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-Day Mortality</td>
<td>8 %</td>
<td>6 %</td>
</tr>
<tr>
<td>1-Year Mortality</td>
<td>9 %</td>
<td>11.6 %</td>
</tr>
</tbody>
</table>

GRACE Registry. Am J Cardiol 2004;93:288
Eur Heart J 2007;28:1409
ACS: a high rate of recurrent CV event

Why is there a high recurrence rate?

N=68,236 patients

Cardiovascular Mortality / MI / Stroke

- at risk of atherothrombosis
- established atherosclerotic arterial disease

cardiovascular death, angina, PAD) within the next 12 months following an ACS.

JAMA 2007;297:1197
ACS: a poor prognosis

• Why is the recurrence rate so high?

  □ Under use of recommended therapy by physician

  □ Atherosclerosis is a chronic disease with a complex treatment

  □ Lack of therapeutic adhesion by the patient
Lack of adherence-compliance

Reality

Improving adherence to treatment: A target with more impact than any other treatment!

Arch Intern Med 2006;166:1842
All patients aged 66 years of older from Ontario who received at least 1 statin prescription were included in this study. At 6 months, more than 25% of patients stopped taking statins. Two-year continuous adherence rates were calculated:

- ACS: 40.1%
- Chronic CAD: 36.1%
- Primary prevention: 25.4%

All curves are based on a Cox proportional hazards model adjusted for covariates. The median follow-up was 494 days for acute coronary syndrome, 430 days for coronary artery disease, 235 days for primary prevention, and 303 days for overall adherence.

JAMA 2002;288:462
Adherence to therapy

Preventive Cardiology

Efficacy of In-Hospital Multidimensional Interventions of Secondary Prevention After Acute Coronary Syndrome
A Systematic Review and Meta-Analysis

Events rate

- Mortality: 11.6% Control, 8.7% Intervention, *p ≤ 0.0001
- Recurrence of AMI: 11.1% Control, 4.8% Intervention, *p ≤ 0.0001
- Rehospitalisation: 21.3% Control, 19.1% Intervention, *p ≤ 0.0001

Circulation 2008;117:3019
The results of Therapeutic Education in chronic diseases

TE has optimized application of biomedical advances

Mortality

Time

diabetes

Insulin 1921

Antibiotics 1945

Patient education 1972
ELIPS: a Multi-dimensional prevention program after ACS

Department of Cardiology
Geneva University Hospital
"Acute Coronary Syndrome-Inflammation“
FNS SPUM Project (www.spum-acs.ch)

Vulnerable plaque

ACS

Follow-up

OCT Imaging

Biomarkers

Repair

Pronostis & Diagnosis

ELIPS

Novel Strategies for the prevention and treatment of ACS

SPUM-ACS-centers in Switzerland: Geneva: Prof F. Mach, Bern: Prof S. Windecker, Zürich: Prof T. Lüscher (PI of global grant)
Tools of information comprehension and motivation of the patient by using uniform messages: \textbf{Patient-level intervention}

For hospitals and outpatient practices
Multi-dimensional

For patients
For Healthcare providers

www.elips.ch
Tools of Communication

Inter-active participation
Tools of Communication

CONE OF LEARNING (EDGAR DALE)

After 2 Weeks we tend to remember

<table>
<thead>
<tr>
<th>Nature of Involvement</th>
<th>Reading</th>
<th>Verbal Receiving</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% of what we READ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20% of what we HEAR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30% of what we SEE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% of what we HEAR &amp; SEE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70% of what we SAY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90% of what we SAY &amp; DO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PASSIVE

ACTIVE

Watching a movie
Looking at an Exhibit
Watching a Demonstration
Seeing it Done on Location

Participating in a discussion
Giving a Talk

Receiving/Participating

Doing a Dramatic Presentation
Simulating the Real Experience
Doing the Real Thing
Novel information tools about ACS and Atherosclerosis:
- a standardized discharge card of treatment
- a website, an e-learning
- an educational DVD
- information flyers & wall chart

and ..... 
- symposiums of information for outpatient and physicians organized by local university hospitals

Tools offered to GPs, internists, cardiologists for their patients
**Phase 1**
Inclusion before
ELIPS (n=1400, control group)

**Phase 2**
Inclusion after
ELIPS (n=1500, treated group)

**Bio-clinical trial**
(12 months Follow-Up)

**Quality trial**
(3 weeks after inclusion)

**Bio-clinical trial**
(12 months Follow-Up)

**Quality trial**
(3 weeks after inclusion)

Inclusion: ACS

Program Start Summer 2011

1° Endpoint: Adherence, CV events

2° Endpoint: Bio-clinical: BMI ↓, LDL ↓, CRP ↓, HDL ↑, tabacco, etc…
## SPUM-ACS studies

<table>
<thead>
<tr>
<th>STUDY SITE</th>
<th>BIOMARKER</th>
<th>Biomarker Control</th>
<th>Comfortable Imaging/Stent COMPLETED</th>
<th>ELIPS Intervention/Control</th>
<th>SPUM TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Last 7 days</td>
<td>Total</td>
<td>Total</td>
<td>Last 7 days</td>
<td>Total</td>
</tr>
<tr>
<td>BERN</td>
<td>3</td>
<td>801</td>
<td>60/250</td>
<td>-</td>
<td>439/230</td>
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<tr>
<td>GENEVA</td>
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<td>374</td>
<td>13/82</td>
<td>9</td>
<td>402/616</td>
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<td>LAUSANNE</td>
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<td>-</td>
<td>1</td>
<td>435/375</td>
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<tr>
<td>ZH</td>
<td>12</td>
<td>1000</td>
<td>109*</td>
<td>3/45</td>
<td>205/145</td>
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<tr>
<td>TOTAL</td>
<td>26</td>
<td>2520</td>
<td>109*</td>
<td>103/1161</td>
<td>1471/1366</td>
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</tbody>
</table>

Data on Monday, February 4th, 2013
ELIPS – preliminary results

Documented Recommended Treatment at Discharge of Participants Hospitalized for an ACS (2009-2010)

<table>
<thead>
<tr>
<th></th>
<th>Total N=1,260</th>
<th>Unstable angina N=81</th>
<th>NSTEMI N=491</th>
<th>STEMI N=688</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin Documentation, %</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Aspirin Prescription, %</td>
<td>99.4 %</td>
<td>98.8 %</td>
<td>99.0 %</td>
<td>99.7 %</td>
</tr>
<tr>
<td>P2Y12 inhibitors Documentation %</td>
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<td>100%</td>
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<td>Statins Documentation, %</td>
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<tr>
<td>Statins Prescription, %</td>
<td>98.0 %</td>
<td>95.1 %</td>
<td>97.4 %</td>
<td>98.8 %</td>
</tr>
<tr>
<td>Beta-blockers Documentation, %</td>
<td>96.1%</td>
<td>92.6%</td>
<td>95.3%</td>
<td>97.0%</td>
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<tr>
<td>Beta-blockers Prescription, %</td>
<td>81.7%</td>
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<tr>
<td>ATII/ACEI Documentation, % (LVEF ≤40%)</td>
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</tr>
<tr>
<td>Cardiac Rehabilitation, %</td>
<td>61.5%</td>
<td>17.3%</td>
<td>54.0%</td>
<td>72.1%</td>
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</table>
ELIPS – preliminary results

Improvement in quality of care for patients discharged after ACS over the last 10 years

Submitted data
Patients reaching LDL goals 1 year after an Acute Coronary Syndrome

- LDL-C < 1.8 mmol/l: 31%
- LDL-C < 2.6 mmol/l: 69%

Submitted data
Discontinuation of Therapies 1 year after an Acute Coronary Syndrome

- Aspirin: 2.9%
- Statin: 6.5%
- Beta-blockers: 16.5%
- ATII antagonist/ACE: 15.6%

Submitted data
ELIPS – preliminary results

Proportion of Treatment Stopped by the Physician at 1 year

- Aspirin: 71.4%
- Statin: 54.6%
- Beta-blockers: 75.0%
- ATII antagonist/ACE..: 67.5%

Submitted data
ELIPS – preliminary results

Documented recommended treatment at discharge of participants hospitalized for an ACS (2009-2010)

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</tbody>
</table>

Submitted data
ELIPS – preliminary results

Factors associated with attendance to cardiovascular rehabilitation among 1260 participants hospitalized for acute coronary syndrome in 4 academic centers in Switzerland from Sept 2009 to October 2010.

<table>
<thead>
<tr>
<th></th>
<th>Adjusted OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 65 years</td>
<td>Ref.</td>
<td>-</td>
</tr>
<tr>
<td>65 to 80 years</td>
<td>.6 (.4, .8)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>&gt; 80 years</td>
<td>.3 (.2, .5)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td><strong>Female gender</strong></td>
<td>1.0 (.7, 1.4)</td>
<td>.83</td>
</tr>
<tr>
<td><strong>Current smoking</strong></td>
<td>.7 (.6, 1.0)</td>
<td>.05</td>
</tr>
<tr>
<td><strong>Lower education</strong></td>
<td>.7 (.5, 1.0)</td>
<td>.08</td>
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<tr>
<td><strong>History of CHD</strong></td>
<td>.3 (.2, .4)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td><strong>Discharge diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unstable angina</td>
<td>.2 (.1, .3)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>NSTEMI</td>
<td>.5 (.4, .7)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>STEMI</td>
<td>Ref.</td>
<td>-</td>
</tr>
</tbody>
</table>

Submitted data
Improvements in quality of care for patients discharged after acute coronary syndromes over the last 10 years

Short title: Quality of care after acute coronary syndrome

Dr Reto Auer, MD¹; Dr Baris Gencer, MD²; Dr Lorenz Räber, MD³; Dr. Roland Klingenberg, MD⁴; Dr Sebastian Carballo, MD, PhD⁵; Dr David Carballo, MD, MPH⁶; Dr David Nanchen, MD, MSc⁷; Pr Jacques Cornuz, MD, MPH⁸; Pr John-Paul Vader, MD, MPH⁹; Pr Pierre Vogt, MD⁹; Pr Peter Juni, MD⁹; Dr Christian M. Matter, MD⁹; Pr Stephan Windecker, MD¹⁰; Pr Thomas Felix Lüscher, MD¹⁰; Pr François Mach, MD²; Pr Nicolas Rodondi, MD, MAs¹⁰

Discontinuation of Recommended Therapies One Year after an Acute Coronary Syndrome: Results from a Prospective Cohort


Lipid-Lowering Therapy Modification and LDL-C Goal Achievement after an Acute Coronary Syndrome: A Prospective Swiss Cohort

Thank you

Dr Lukas Altweg
Dr Reto Auer
Dr Vincent Barthassat
Dr David Carballo
Dr Sebastian Carballo
Pr Jean-Claude Chevrolet
Dr Pierre Chopard
Mme Suzanna Convert
Prof Jacques Cornuz
Dr Pascal Gache
Pr Alain Golay
Mme Christelle Guillaume
Dr Pierre-Frédéric Keller
Dr Roland Klingenberg
Pr Thomas Luscher
Pr François Mach
Dr Christian Matter
Mme Suzanne Mueller
Pr Thomas Perneger
Dr Lorenz Raeber
Mme Agnies Reffet
Mme Ariel Richard-Arlaud
Dr Nicolas Rodondi
Dr Marco Roffi
M. Allen Savard
Mme Florence Scherrer
M. Franck Schneider
M. Philippe Sigaud
Dr Johanna Sommer
Pr Pierre Vogt
Pr Gérard Waeber
Pr Stephan Windecker

www.spum-acs.ch
Lack of adherence is a major problem

Improving adherence to treatment:
A target with more impact than any other treatment!

Patient-level intervention

Health care providers-level intervention

Therapeutic Education will optimalized applications of biomedical advances
Thank you
Auditory stimulation of opera music induced prolongation of murine cardiac allograft survival and maintained generation of regulatory CD4⁺CD25⁺ cells

Masateru Uchiyama¹²³, Xiangyuan Jin²⁴, Qi Zhang², Toshihito Hirai⁵, Atsushi Amano¹, Hisashi Bashuda³ and Masanori Niimi²

Conclusion: Our findings indicate that exposure to opera music, such as La traviata, could affect such aspects of the peripheral immune response as generation of regulatory CD4⁺CD25⁺ cells and up-regulation of anti-inflammatory cytokines, resulting in prolonged allograft survival.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>MST (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opera music</td>
<td>10</td>
<td>26.5</td>
</tr>
<tr>
<td>Opera music (Tympanic membrane perforation)</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>No treatment</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Single Frequency: 100Hz</td>
<td>4</td>
<td>7.5</td>
</tr>
</tbody>
</table>
OCCASIONAL NOTES

Chocolate Consumption, Cognitive Function, and Nobel Laureates
Franz H. Messerli, M.D.

Dr. Messerli reports regular daily chocolate consumption, mostly but not exclusively in the form of Lindt’s dark varieties.

Figure 1. Correlation between Countries’ Annual Per Capita Chocolate Consumption and the Number of Nobel Laureates per 10 Million Population.