

## Project Funding 2012/2013 «LOST IN TRANSITION»

The award of CHF 70'000.-- is granted to the following project:

### Multicenter validation of a prediction model to identify medical patients at high risk of 30-day potentially avoidable readmission

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#### **Abstract**

##### **Background**

Transitions of care are high risk periods for patients. Many complications occur as patients are discharged from hospitals to the ambulatory setting, which lead to unnecessary distress and costly avoidable readmissions. Recent laws implemented in Switzerland have the potential to radically change these transitions of care. On one hand, they have introduced a new financing structure, the Swiss Diagnosis Related Groups-based performance payment system (SwissDRG), where hospitals are now heavily penalized if unable to reduce patient length of stay. On the other hand, hospitals are also responsible for the care provided to patients for the first two weeks after discharge. It has therefore become even more important than ever for hospitals to enhance the quality of care transitions as patients are discharged from the hospital.

Although all patients deserve a high-quality discharge process that includes, for example, timely hand-off and follow-up appointments, more complex and costly interventions like post-discharge phone calls and pharmacist-assisted medication reconciliation should be targeted to the patients who are most likely to benefit. To identify these high-risk patients, we recently derived a prediction model for medical patients in the U.S. This score is named "HOSPITAL" and includes seven variables readily available before discharge. This prediction model is unique and has shown great promise as a tool to target transitional interventions to patients at high risk of

readmission in the U.S. It can be used to improve the transitions of care in Switzerland but only after it is locally validated.

### **Objectives**

1. To externally validate the "HOSPITAL" score to identify medical patients at high risk of 30-day potentially avoidable readmission in Switzerland.
2. To adapt if needed the "HOSPITAL" score that was originally derived in the U.S., to the specificities of medical patients in Switzerland.
3. To assess the performance of the "HOSPITAL score" in predicting 30-day potentially avoidable readmissions when specifically applied to internal medicine patients only.

### **Methods**

This retrospective study will collect data from three main university teaching hospitals in Switzerland (Bern, Lausanne and Geneva). All consecutive adult patients discharged from the medical department of these hospitals will be included for analysis. We will assess these data from approximately 30,000 discharges from January 1, 2011, to December 31, 2012. Patient who died before discharge or were transferred to another acute care health care facility will be excluded from the analysis.

The study outcome will be any baseline admission that is followed by a potentially avoidable readmission within 30 days after discharge. Avoidable readmissions will be differentiated from non avoidable readmissions using a validated computerized algorithm (SQLape®) commonly used in Switzerland to benchmark and compare hospitals.

The estimated risk of each patient will be calculated using the "HOSPITAL" score. To assess the accuracy of the "HOSPITAL" score to predict 30-day readmission, we will measure sensitivity, specificity, positive and negative predictive values, C-statistic and the calibration.

The results of this study will inform health care providers which patients are at high risk of being readmitted and who are therefore more likely to benefit from transitional care interventions.

In summary, this innovative multi-centered project involves world-renowned experts in the transition of care and recent cutting-edge results from the U.S., to conduct research that will have very concrete, cost-effective and timely implications for all medical patients discharged across Switzerland.