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Don't cheat on your prescription! –

A retrospective study on COPD patients'

medication adherence based on

Swiss sickness fund data

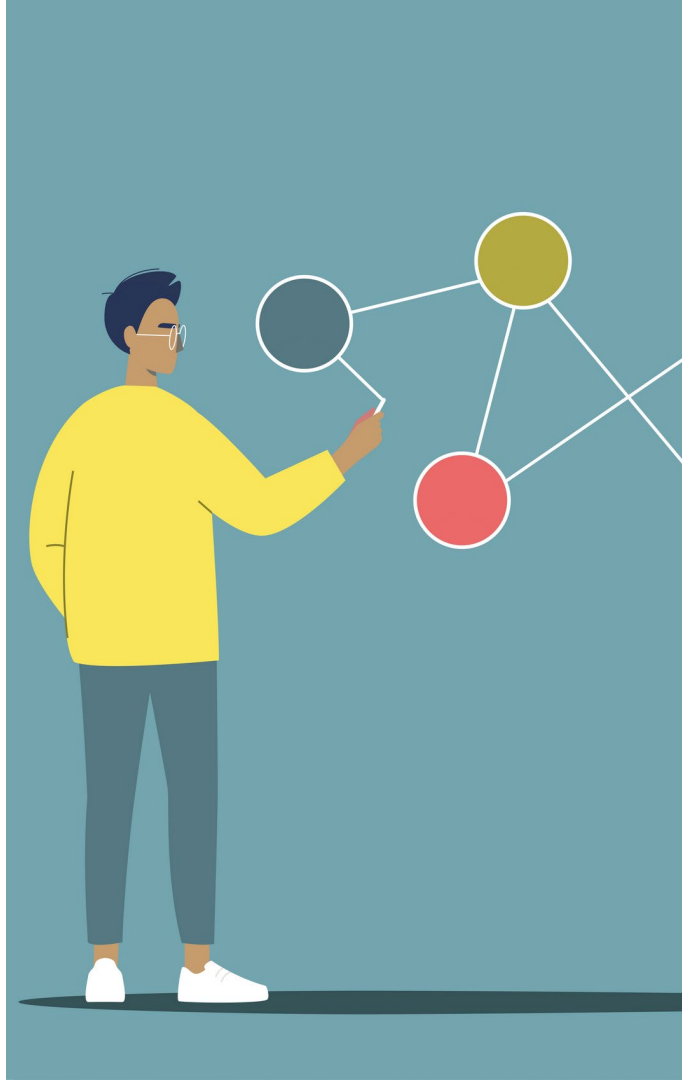Anja Bischof, Johannes Cordier, Justus Vogel, Alexander Geissler

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From insight to impact.

Disclosure

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COPD – A devastating chronic lung disease caught our attention

COPD caused by **exposure to harmful particles** and characterized by **respiratory symptoms** (i.e., dyspnea, cough, and sputum) and **airflow obstruction** (GOLD, 2021)

Third leading cause of death worldwide in 2019 (fifth leading cause of death in Switzerland) (GOLD, 2021; WHO, 2020).

Benefit of respective medication adherence: alleviation of disease-specific symptoms, slow down of disease progress, and prevention of hospitalizations due to exacerbations (Davis et al., 2017).

Consequences of exacerbations: additional therapy, setback of the patients' quality of life, rising risk for iatrogenic harm and decline in the lung function long-term (Donaldson et al., 2002; Miravitlles et al., 2004)

Medication adherence = "the extent to which the person's behavior corresponds with the agreed recommendations from a health care provider" (WHO, 2003)

Medication adherence in clinical trials is up to **80%** (Vestbo et al., 2009); in real-world setting between **20-60%** (Restrepo et al., 2008; Toy et al., 2011).

"How high is medication adherence among COPD patients in Switzerland and what is the impact of inadequate medication adherence with respect to exacerbation likelihood?"

Applying logistic regression to estimate the effect of medication adherence on exacerbation probability

DATA:

No identification through diagnosis, therefore approximation needed!

Inclusion criteria for patients:
1) Therapy with long-acting drugs
2) Age (>40 years) to separate between COPD and asthma
3) Availability of billing data for at least two consecutive years before the exacerbation

Finally, **13,557 COPD** (2015-2020) patients were included into the model

METHOD:

Medication proportion ratio (MPR) represents the proportion of days covered by long-acting inhalers during the period of investigation (Suh et al., 2022).

Calculation of MPR based on following medication information:
1) Date of purchase
2) Package size (in number of doses)
3) Recommended daily dose

We calculated the **distribution of the MPR** for all patients and used **logistic regression** to identify factors significantly associated to a higher likelihood of incurring a hospitalized exacerbation

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The insights of our study call for further investigation of patients' daily needs

Major Insights:
1) The **rate** of medication adherence is **heavily distributed** within COPD patients in Switzerland.
2) High medication adherence **significantly decreases** the risk for **hospitalized exacerbations** (up to 51%).

Limitations:
1) Due to missing diagnosis, patients had to be identified through an approximation
2) Missing information on **personal** and **financial situation** which may influence a patient's decision on having a high MPR

Implications for practice:
Findings support physicians' **risk assessment on the likelihood for hospitalized exacerbations** for their patients and enhance them to **focus on preventive measures** – such as higher attention on good medication adherence

Implications for research:
Focus on **patients' personal needs** and develop a deepened understanding on **supporting mechanisms** for COPD patients, e.g., regular reminders for taking their medications, when dealing with **daily challenges** of their chronic disease to avoid exacerbations.

Looking forward to connect.

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Please note, this is a shortened version of the presentation – the full presentation is available upon reasonable request from the authors.

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