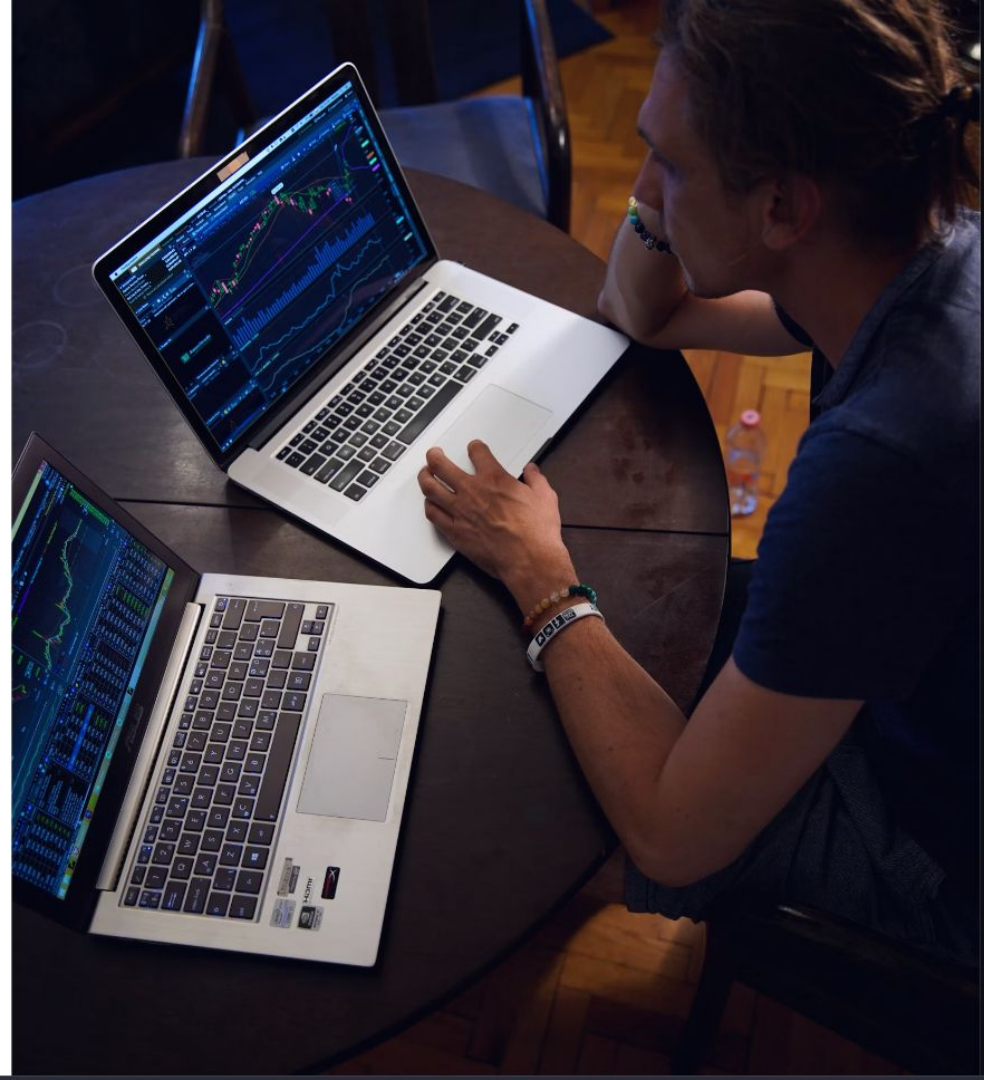


PRECISION HEALTHCARE WITH POLYPHARMIC RISK SCORE

NAVIGATING HEALTHCARE DATA TO IDENTIFY COMBINATORIAL DRUG IMPACTS FOR PRECISION HEALTHCARE



INTRODUCING THE POLYPHARMIC RISK SCORE: REVOLUTIONIZING PRECISION HEALTHCARE





IMPORTANCE OF COMBINATORIAL IMPACTS

"One of a Kind"

In the quest for Precision Healthcare, the development of the 'Polypharmic Risk Score' aims to analyze the combinations of over-the-counter medication interaction data to enhance healthcare analysis. This integration is crucial for uncovering potential health risks and improving patient outcomes as a ONE-OF-A-Kind solution.

INITIAL SOLUTION

"Deepening Medical Understanding"

The initial solution is based on a limited array of OTC medications in a comparison review of time blocked analysis.

Polypharmic Risk Score (PHRS)

A polypharmic risk score (PHRS) assesses the cumulative risk associated with the repeated use of over-the-counter medications over time. It is determined by evaluating the compounded effects of multiple medication exposures, each contributing to the overall risk based on their potential long-term impacts. The polypharmic Risk Score was originally developed by Michael Stabenow and this solution was developed for submission in the 2022 Global Factors Lab hackathon.

Step 1: Select 1st OTC medication. Step 2: Select 2nd OTC medication.

Score based on severity: 0 (low), 100 (highest)

Select 1st OTC Medication

Acetaminophen

Get Score

Select 2nd OTC Medication

Aspirin

Get Score

Additional Information

Understanding Polypharmic Risk

Polypharmic risk refers to the potential health hazards associated with taking multiple medications simultaneously. This risk increases with the number of medications used, especially when combining over-the-counter (OTC) drugs with prescription medications.

Tips for Minimizing Polypharmic Risk

- Always consult with your healthcare provider or pharmacist before starting a new medication, even if it's OTC.
- Keep an up-to-date list of all medications you're taking, including OTC drugs, supplements, and herbal remedies.
- Be aware of potential drug interactions and side effects.
- Regularly review your medications with your healthcare provider to ensure they're all still necessary.

Step 1: Select 1st OTC medication. Step 2: Select 2nd OTC medication.

Score based on severity: 0 (low), 100 (highest)

Select 1st OTC Medication

Diphenhydramine (Benadryl)

Get Score

Select 2nd OTC Medication

Acetaminophen

Get Score

Risks:

- Cognitive Impairment:** Diphenhydramine can cause confusion, memory problems, and difficulty concentrating, particularly in older adults. **Severity: Moderate. Frequency: Common.**
- Anticholinergic Effects:** Long-term use of diphenhydramine can lead to dry mouth, blurred vision, constipation, and urinary retention due to its anticholinergic properties. **Severity: Moderate. Frequency: Common.**
- Cardiovascular Risks:** Diphenhydramine may increase the risk of heart palpitations, arrhythmias, and high blood pressure, especially in those with pre-existing heart conditions. **Severity: High. Frequency: Uncommon.**
- Respiratory Depression:** In high doses or when combined with other sedatives, diphenhydramine can cause slowed breathing and respiratory depression. **Severity: Severe. Frequency: Rare.**
- Gastrointestinal Issues:** Prolonged use of diphenhydramine can lead to nausea, vomiting, abdominal pain, and decreased appetite. **Severity: Moderate. Frequency: Common.**
- Skin Reactions:** Diphenhydramine can cause skin reactions such as rash, itching, and hives, particularly in those with sensitive skin or allergies. **Severity: Moderate. Frequency: Common.**
- Sleep Disturbances:** While diphenhydramine is often used as a sleep aid, long-term use can disrupt normal sleep patterns and lead to insomnia. **Severity: Moderate. Frequency: Common.**
- Dependence and Tolerance:** Regular use of diphenhydramine can lead to dependence and tolerance, requiring higher doses to achieve the same effect. **Severity: Moderate. Frequency: Common.**
- Interactions with Other Medications:** Diphenhydramine can interact with other medications, such as antidepressants and blood pressure medications, potentially causing adverse effects. **Severity: Moderate. Frequency: Common.**
- Impaired Driving and Coordination:** Diphenhydramine can cause drowsiness, dizziness, and impaired coordination, increasing the risk of accidents and falls. **Severity: Moderate. Frequency: Common.**

Step 1: Select 1st OTC medication. Step 2: Select 2nd OTC medication.

Score based on severity: 0 (low), 100 (highest)

Select 1st OTC Medication

Diphenhydramine (Benadryl)

Get Score

Select 2nd OTC Medication

Aspirin (Daily)

Get Score

Risks:

- Cognitive Impairment:** Diphenhydramine can cause confusion, memory problems, and difficulty concentrating, particularly in older adults. **Severity: Moderate. Frequency: Common.**
- Anticholinergic Effects:** Long-term use of diphenhydramine can lead to dry mouth, blurred vision, constipation, and urinary retention due to its anticholinergic properties. **Severity: Moderate. Frequency: Common.**
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Polypharmic Risk Score:

- The polypharmic risk score for Diphenhydramine (Benadryl) when used with Aspirin (Daily) is 70.
- This score was arrived at by considering the potential risks associated with both medications. Both Diphenhydramine and Aspirin can cause drowsiness and impaired coordination. When used together, these effects may be amplified, increasing the risk of accidents and falls. Additionally, both medications can interact with other drugs, potentially causing adverse effects.
- Aspirin's concern with this combination is the potential for increased bleeding and cognitive impairment, particularly in older adults. This can lead to falls and other accidents, as well as difficulty with daily activities.
- Implications with user experience:
 - 1 month's short-term use of this combination may cause drowsiness, dizziness, and impaired coordination. There may also be an increased risk of gastrointestinal issues and skin reactions.
 - 3-6 months: Prolonged use of this combination may lead to dependence and tolerance, requiring higher doses to achieve the same effect. There may also be an increased risk of cardiovascular issues and respiratory depression.
 - 1 year: Long-term use of this combination may cause sleep disturbances and cognitive impairment, particularly in older adults. There may also be an increased risk of anticholinergic effects and gastrointestinal issues.
 - 4-5 years: Very long-term use of this combination may lead to severe cardiovascular and respiratory issues, as well as increased risk of falls and accidents. There may also be an increased risk of dependence and tolerance, as well as impaired driving and coordination.

does to achieve the same effect. **Severity: Moderate. Frequency: Common.**

- Interactions with Other Medications:** Diphenhydramine can interact with other medications, such as antidepressants and blood pressure medications, potentially causing adverse effects. **Severity: Moderate. Frequency: Common.**
- Impaired Driving and Coordination:** Diphenhydramine can cause drowsiness, dizziness, and impaired coordination, increasing the risk of accidents and falls. **Severity: Moderate. Frequency: Common.**

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Tips for Minimizing Polypharmic Risk

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- Be aware of potential drug interactions and side effects.
- Regularly review your medications with your healthcare provider to ensure they're all still necessary.

Disclaimer

This tool provides general information and is not a substitute for professional medical advice. Always consult with a qualified healthcare provider before making decisions about your health or medication regimen.

It is important to note that the combination of Diphenhydramine (Benadryl) and Aspirin (Daily) can lead to increased risks, particularly in older adults. There may also be an increased risk of anticholinergic effects and gastrointestinal issues.

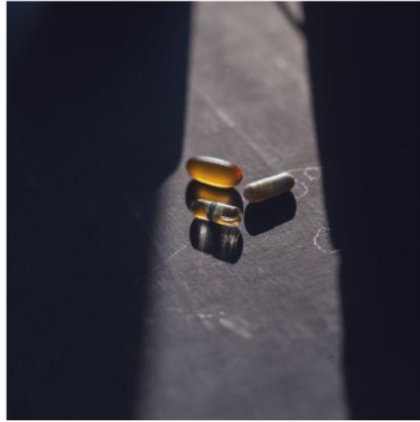
- Long-term Use:** Very long-term use of this combination may lead to severe cardiovascular and respiratory issues, as well as increased risk of falls and accidents. There may also be an increased risk of dependence and tolerance, as well as impaired driving and coordination.

POLYPHARMIC RISK



Impact

Understand the implications of OTC medications.



Risks

Identify potential adverse effects.



Precision

Deliver tailored healthcare analysis.



Data

Overcoming healthcare data hurdles.

UNLOCKING PRECISION HEALTHCARE THROUGH COMBINED ANALYSIS



BENEFITS



Improved Insights

Enhance healthcare predictions for individual patients.



Personalized Care

Tailored treatment plans for better outcomes.



Data Optimization

Leverage patient data for precise healthcare decisions.



IMAGINE THE POTENTIAL

Expanding Possibilities

The development of the 'Polypharmic Risk Score' opens up new possibilities in precision healthcare by providing substantially deeper understanding of multiple drug interactions. This innovation aims to address the risks posed by over-the-counter medications over time. This ground-breaking solution is on the immediate horizon...

TEAM

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**SPECIAL NOTE OF APPRECIATION TO AI71
AND LABLAB.AI FOR THE OPPORTUNITY**