Medicine as the machines get better at it

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A cautionary note…..

Findings

Our search identified 31 587 studies, of which 82 (describing 147 patient cohorts) were included. 69 studies provided enough data to construct contingency tables, enabling calculation of test accuracy, with sensitivity ranging from 9·7% to 100·0% (mean 79·1%, SD 0·2) and specificity ranging from 38·9% to 100·0% (mean 88·3%, SD 0·1). An out-of-sample external validation was done in 25 studies, of which 14 made the comparison between deep learning models and health-care professionals in the same sample. Comparison of the performance between health-care professionals in these 14 studies, when restricting the analysis to the contingency table for each study reporting the highest accuracy, found a pooled sensitivity of 87·0% (95% CI 83·0–90·2) for deep learning models and 86·4% (79·9–91·0) for health-care professionals, and a pooled specificity of 92·5% (95% CI 85·1–96·4) for deep learning models and 90·5% (80·6–95·7) for health-care professionals.

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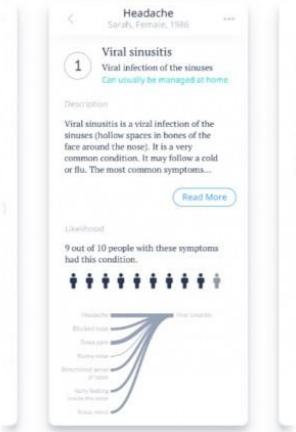

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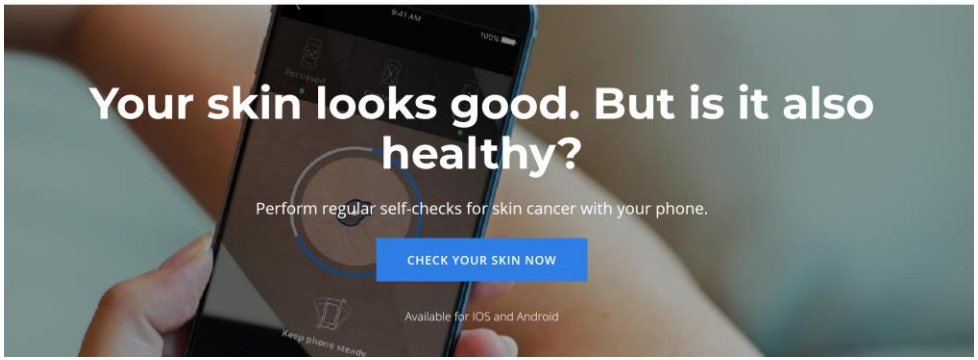

For any given task……

If AI isn't better ……

…then we shouldn't be using it!

If AI is better ……

…then we shouldn't be doing it!

Better than…

- **Nothing?**
- **Most doctors?**
- **The average doctor?**
- **The best doctor?**

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