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Feasibility and Implementation of an Out-of-Pocket Cost Calculator for Pre-Treatment Financial Counselling in Cancer Patients

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AIM

ChemoCalc, a digital calculator for individualised Out-Of-Pocket estimates, was developed to streamline the financial counselling (FC) process for cancer patients, aiming to improve efficiency, accuracy and uptake.

BACKGROUND

In Singapore's healthcare landscape, with the recent introduction of the Cancer Drug List (CDL), determining Out-Of-Pocket costs for cancer treatment is complex, involving multiple factors such as subsidy status, insurance coverage, residency status, drug subsidy tier and therapeutic indication. This complexity underscores the need for efficient and accurate financial counselling process.

METHODS

Developed by a multidisciplinary team from a Singapore tertiary cancer centre, ChemoCalc integrates data from various sources including the CDL, hospital formulary, chemotherapy protocols, and various national subsidy schemes. An algorithm was devised to calculate regimen-specific Out-Of-Pocket costs. Following development, ChemoCalc underwent usability testing and FC staff training. Data was collected pre- and post-implementation, focusing on feasibility outcomes (including demand, acceptability, practicality and integration) and implementation outcomes (including adoption, engagement, efficiency and accuracy.)

RESULTS

ChemoCalc, implemented from Aug to Sep 2022, demonstrated high uptake with 72 staff members utilizing it. On average, the prices of 2,484 regimens (mean 11 regimens/patient) were generated each month, with a total of 17,385 price estimates generated. Adoption and engagement rates among FC staff were both 100%.

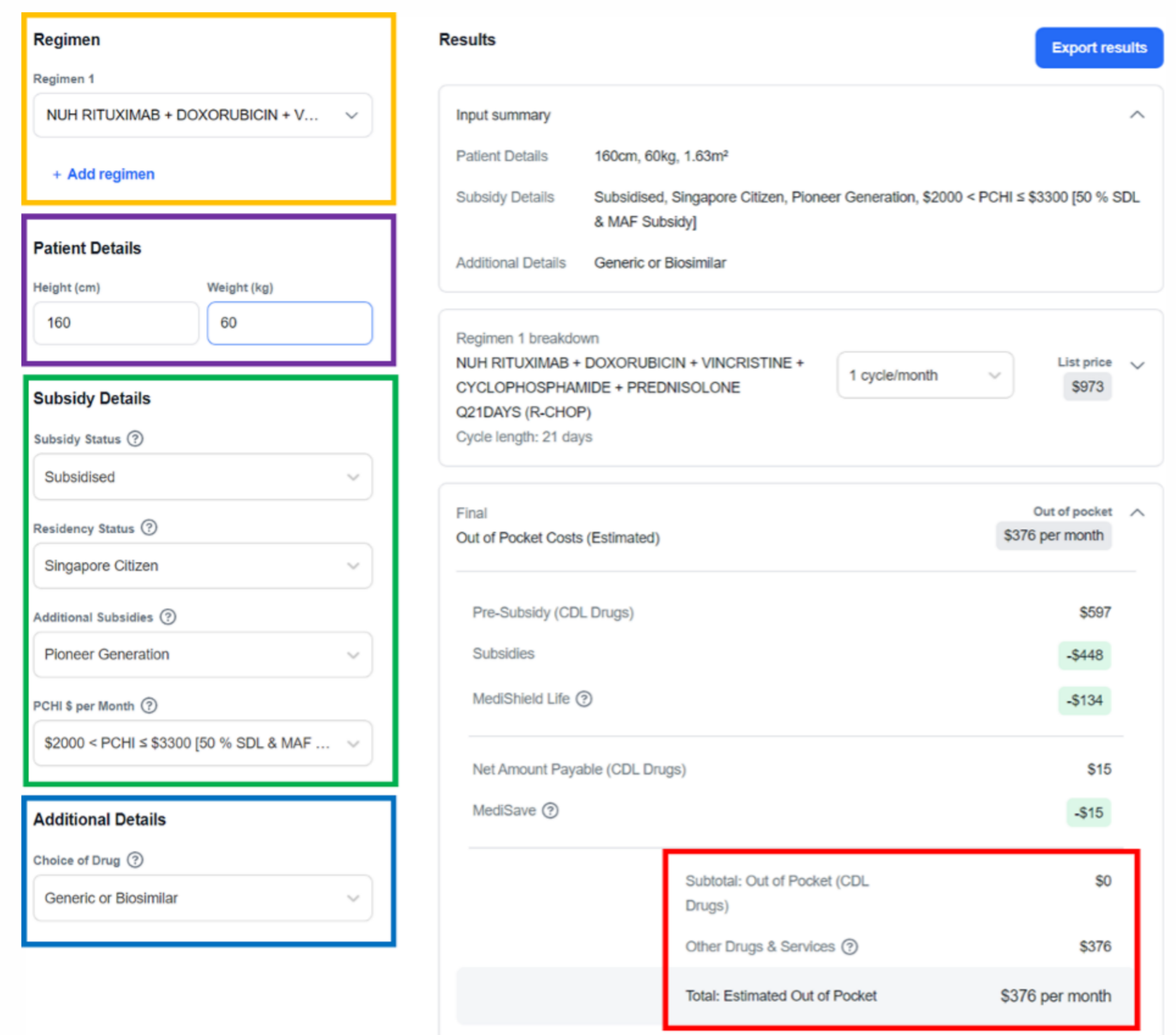
ChemoCalc significantly improved FC accuracy from a baseline of 35% to 95% (270% increase). Time spent computing Out-Of-Pocket costs reduced from a median of 8min (range 4.5–13) to 44s (range 15-20) for simple regimens, and 23min (range 15.5-44) to 1min (range 0.3-1.3) for complex regimens respectively. Its convenience and simplicity led to 100% uptake for pre-treatment FC.

CONCLUSION

The implementation of ChemoCalc was successful with 100% adoption rate and significantly improved FC efficiency and accuracy. Its adaptable algorithm can be tailored for implementation in diverse healthcare settings, promising benefits in streamlining financial processes and improving patient care coordination.

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The screenshot shows the ChemoCalc interface with several input sections and a results summary. The 'Regimen' section includes a dropdown for 'Regimen 1' (NUH RITUXIMAB + DOXORUBICIN + V...). The 'Patient Details' section has input fields for Height (cm) and Weight (kg). The 'Subsidy Details' section includes dropdowns for Subsidy Status, Residency Status, Additional Subsidies, and PCHI \$ per Month. The 'Additional Details' section has a dropdown for Choice of Drug. The 'Results' section shows an 'Input summary' with patient details, subsidy details, and additional details. Below this is a 'Regimen 1 breakdown' showing drug names, cycle length, and list price. The 'Final Out of Pocket Costs (Estimated)' section provides a detailed breakdown: Pre-Subsidy (CDL Drugs) \$697, Subsidies -\$448, MediShield Life -\$134, Net Amount Payable (CDL Drugs) \$15, and MediSave -\$15. A red box highlights the 'Subtotal: Out of Pocket (CDL Drugs)' as \$0 and the 'Total: Estimated Out of Pocket' as \$376 per month.

Figure 1: ChemoCalc User Interface

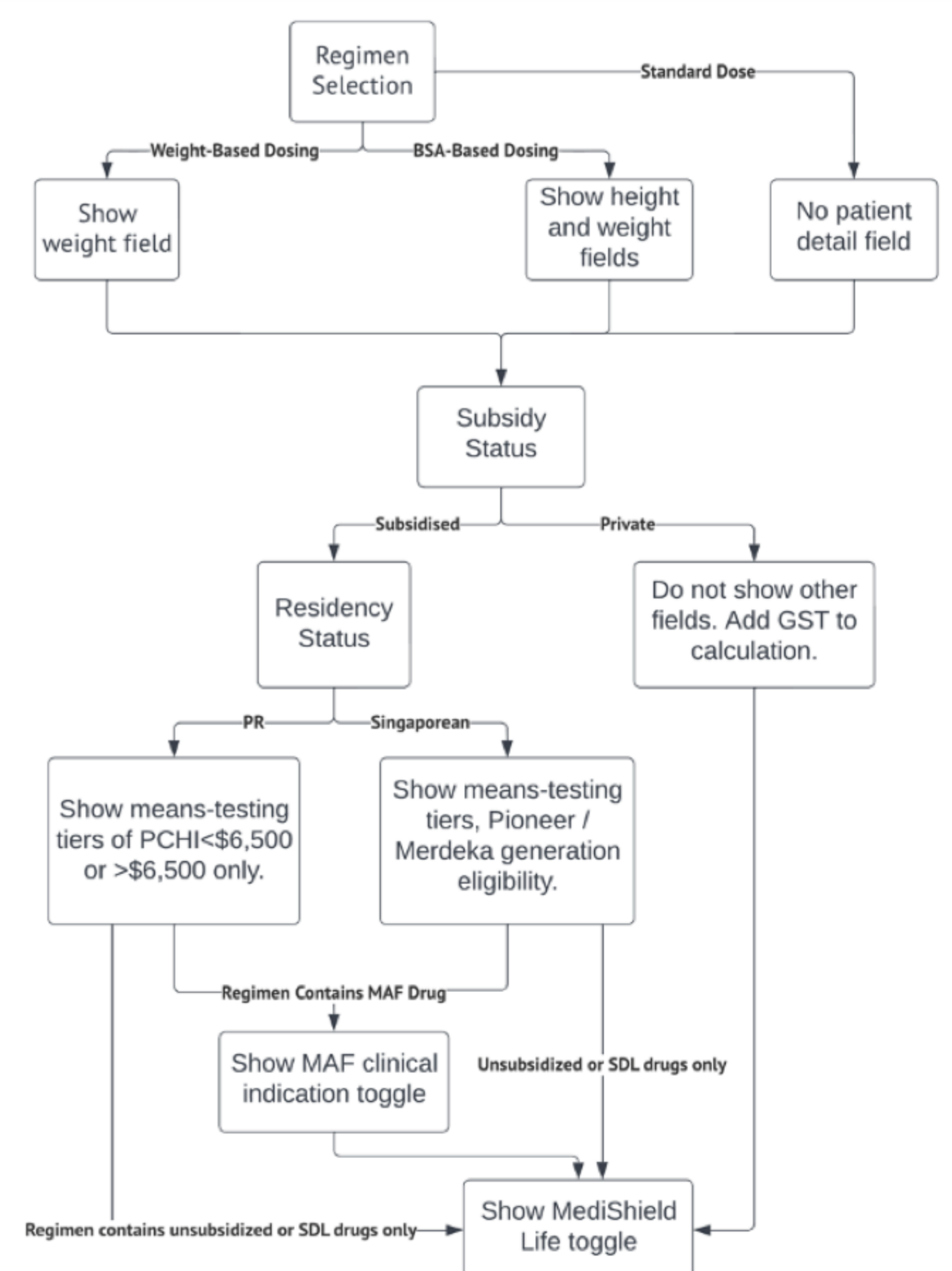


Figure 2: UI Logic