



DRIVING INNOVATION, ENHANCING CARE: LIMITING SODIUM TO 2000 MG IN DAILY HOSPITAL MEALS

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HOSPITAL PAKAR SULTANAH FATIMAH,
MUAR, JOHOR

CONTENT OF PRESENTATION

- Introduction
- Rationale and needs for the innovation
- Phase 1 Innovation
- Phase 2 Innovation
- Conclusion

INTRODUCTION

- Excessive sodium intake is a global public health concern, with significant implications for cardiovascular health, hypertension, and chronic kidney disease.
- The global mean sodium intake of adults is 4310 mg/day sodium.
- Studies have shown that excessive dietary sodium contributes to over 1.65 million deaths annually due to its' association with elevated blood pressure and related disease.
- A reduction in daily intake of about 1 gram can lower BP by an average of 2 mmHg, which can reduce the incidence of stroke by about 10% and that of heart disease by 5% (WHO 2010).

BURDEN IN MALAYSIA

- The prevalence of hypertension in Malaysian adult is currently at 29.2% (NHMS 2024).
- 76% of Malaysian adults consumed an average of 2,892 mg sodium per day, exceed WHO recommendation of 2000 mg/day (NHMS 2024).
- Malaysia's Salt Reduction Strategy to Prevent and Control Non-communicable Diseases (NCD) aims to lower the population's sodium intake to 2,400 mg per day by 2025.
- Therefore, more impactful and targeted interventions are urgently needed to achieve this goal.

RATIONALE

- Hospital diets play a critical role in managing sodium intake, particularly for patients with hypertension, heart disease, and kidney-related conditions.
- Challenges :
 - Inconsistent meal preparation practices
 - Inadequate nutritional training among kitchen staff
 - Limited use of sodium control tools
- Studies on sodium estimation tools, have demonstrated the feasibility of using technology to assess and manage sodium intake effectively.
- However, there is limited research on tools that assist meal preparation, specifically aimed at reducing sodium content in a systematic and user-friendly manner.

NEED FOR THE INNOVATION

- Existing sodium reduction strategies:
 - focus heavily on estimating sodium content in prepared meals or modifying procurement practices
 - Do not address the systematic integration of sodium reduction strategies during meal preparation
- Hospital food services require tools that not only estimate sodium but also guide kitchen staff in preparing meals that adhere to recommended sodium levels without compromising taste, variety, or patient satisfaction.

RECOMMENDATION

- Recommended Nutrient Intakes for Malaysia :

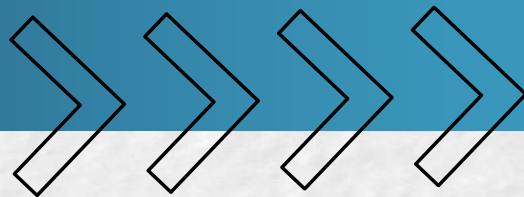
- Adequate Intake (AI): 120-370mg/day (infants 0-12mths), 1000-1500mg/day (children & adolescent), 1500mg/day (adults);
- Tolerable Upper Intake Levels (UL) : 1000mg/day (1-3yr), 1400mg/day (4-8yr), 2000mg/day (9-13 yr), 2300mg/day (14- adults).

(A report of the TWG on Nutritional Guidelines, 2017)

WHO recommended maximum level of **2 g/day sodium** in adults, applies to all individuals **with or without hypertension**, including pregnant/lactating individuals, except for individuals with illness or taking drug therapy that may lead to hyponatremia or acute build-up of body water, or require physician-supervised diets (eg. Patient with heart failure and those with type 1 diabetes). (WHO 2012)



INNOVATION (PHASE 1) D-SALT CALCULATOR



HOSPITAL FOOD SERVICES WORKFLOW PROCESSES



Kira bilangan pesakit



Kira kuantiti bahan
(MANUAL)



Pengeluaran bahan



Pra-penyediaan



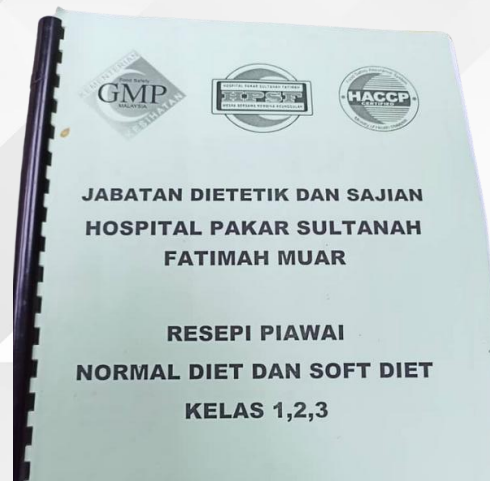
Memasak



Ujirasa



Agihan diet



Buku Resepi Piawai adalah
rujukan proses kerja

KEPATUHAN PROSES KERJA
HARIAN TERHAD KERANA
PENGIRAAN BAHAN SECARA
MANUAL RUMIT



AUDIT PEMPATUHAN RESEPI PIAWAI JABATAN DIETETIK DAN SAJIAN		
NAMA RESEPI	SARAPAN / MAKAN TENGGAHARI / MINJUK PETANG / MAKAN MALAM	
WAKTU MAKAN	NORMAL / DIABETIK DIET (LOW FAT / LOW SALT / LOW PHOSPHATE / LOW POTASSIUM / LOW PROTEIN / HIGH PROTEIN)	
JENIS DIET		
RESEPI MAKAN		
BAHAN BAHAN	RESEPI KUALITI PILIHAN	PONT SUKLAH/RESEPI PILIHAN
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TANDatangan: COP PEGAWAI DIETETIK		
TARIKH:		

RESEPI PIAWAI HOSPITAL KKM				BILA LETAK GAMBAR MENU DI SINI		
KOD MENU	1	KKM/JDSRP-1-B01-PJB				
NAMA PRODUK	1	KUEY TEOW GORENG				
KADEAH MEMASAK	1	MEMURIS / MENGORENG				
TITIK KAWALAN KRITIKAL	1	KAWALAN SUPU TENGGAH PRODUK (>700)				
JAMBAKA HAYAT PRODUK	1	4 JAM SELEPAS DIMASAK				
ADARAN PELABELAN	1	LABEL DIET				
PENGUNA	1	PESAKIT / MAC / DOC / PARAMEDIK				
WAKTU HIDANGAN	1	MAKAN TENGGAHARI & MAKAN MALAM				
SIFAT-SIFAT PRODUK	1					
		KRITERIA		TANDA KUALITI		
		LEMBAB DAN BERKUALITI				
		LEMBAB TIDAK BERKUALITI				
		TIDAK BERKUALITI/BERKUALITI			✓	
		WARNA (NYATAKAN)				
*KATEGORI RAMUAN: KR - RAMUAN UTAMA / RD - RAMUAN DAPATKAN / RA - RAMUAN ALERGI						
BIL.	RAMUAN	KR	RD	RA	POSISI HIDANGAN	CATATAN
1	KUEY TEOW	RU	KO		50	
2	BAHANG BESAR	RU	KO		50	} DIVISY
3	BAHANG PUTIH	RU	KO		50	
4	BAHANG KERING	RU	KO		500	
5	KICAP PEKAT MARIS	RU	KO		1	
6	ISI AYAM	RU	KO		50	
7	TAUKEH	RU	KO		50	
8	DAUN KUCAS	RU	KO		50	
9	FISH CAKE	RU	KO		50	



ANUGERAH INOVASI KEMENTERIAN KESIHATAN MALAYSIA 2023

Projek **Inovasi** Proses

Kalkulator *D-Salt*



Pn Dalila Othman

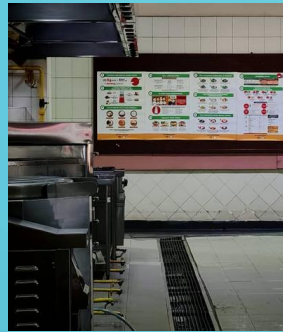


Mengenal pasti kandungan sodium dalam makanan dan minuman menggunakan **SISTEM POINT SODIUM** dalam langkah pengurangan pengambilan garam

200mg SODIUM = 1 POINT SODIUM

SARANAN PENGAMBILAN SEHARI :
2000mg SODIUM
(1 paras sudu teh garam) = 10 POINT SODIUM

KUMPULAN	POINT SODIUM / HARI
MAKANAN SEMULAJADI	*2
HIDANGAN UTAMA	6 - 8
HIDANGAN SAMPINGAN	0 - 2
JUMLAH	10



ERING EDUCATION (CCE):

GAN DAN FUNGSI RESEPI PIAWAI
PENYEDIAAN MAKANAN DI HOSPITAL

TARIKH: 13 JUN 2023
HARI: SELASA
MASA: 2:30PM
SECARA ATAS TALIAN (GOOGLE MEET)
SILA IMBAS KOD QR DIBAWAH BAGI PAUTAN GOOGLE MEE

PN NOR SYAKIRA BINTI YAKUB,
PEGAWAI PENYEDIAAN MAKANAN (CALL),
HOSPITAL PAKAR SULTANAH FATIMAH, MUAR



TEMPAT KE 3

Kalkulator D-Salt

Jabatan Dietetik dan Sajian
Hospital Pakar Sultanah Fatimah,
Johor

Kalkulator D-Salt

AIKKM 2023
(KATEGORI PROSES)
ANUGERAH INOVASI
KEMENTERIAN KESIHATAN MALAYSIA

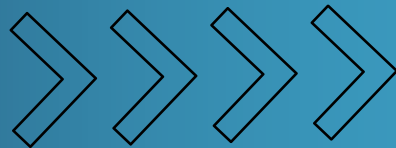


INNOVATION (PHASE II)

- Collaboration with MMU (Final Year student project) : Upgrade innovation from Excel to Desktop applications
- Since July 2024, Dietetic and Food Service Department HPSF has utilized a digital meal planning tool (PlanPrep), a more user-friendly sodium content estimation during meal preparation.
- It integrates sodium and macronutrient data with standard recipes and generates a quantity of ingredients to be prepared based on the total count of diet orders at each meal.
- This application ensures consistency and compliance in sodium control across a variety of menus in the hospital.



INNOVATION(PHASE II) PLANPREP





INOVASI PLANPREP

KALKULATOR D-SALT VERSI APLIKASI DESKTOP



JABATAN DIETETIK DAN SAJIAN
HOSPITAL PAKAR SULTANAH FATIMAH, MUAR
JABATAN KESIHATAN NEGERI JOHOR

WAY FORWARD

- Limitation of current desktop application
 - Lacks multi-user interface capabilities, accessibility, scalable data storage
 - Not able to support real-time database updates
- Plan: Upgrade to a **web-based digital tool** to ensure optimal performance and feasibility of implementing hospital meal preparation that adheres to the <2000 mg sodium/day target.
- Research protocol on development and validation of a web-based digital tool already submitted through NMRR, applying for MOH Research Grant to support the cost.

CONCLUSION

- Adherence to sodium limitation of 2000 mg/day in MOH hospital diet is crucial in line with the commitment to the WHO Global Nutrition Target (30% salt reduction by 2025) and the Sustainable Development Goals (SDG 3: health and well-being).
- By using innovative processing techniques and creative combination of natural flavour enhancers, hospital food services can successfully lower sodium levels without compromising product quality.

An abstract graphic on the left side of the slide, consisting of a network of white lines and small circles on a blue gradient background. The lines and circles resemble a circuit board or a neural network, with some lines extending vertically and others branching out horizontally and diagonally. The circles are of varying sizes and are connected by thin lines, creating a complex, interconnected pattern.

THANK YOU.