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Comparison of dietetics service delivery (demand and determinants) within two Australian Medical Assessment and Planning Units

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CASE STUDY

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ABSTRACT

Aims
Assessment and Planning Units have increased globally however, models of care literature is limited. With high malnutrition prevalence amongst ageing populations, this case report identifies demands for dietetic services.

Methods
Descriptive data compared and contrasted two service including medical models, eligibility criteria, malnutrition screening, dietetic services, clinical follow-up, and team composition.

Results
High malnutrition prevalence (17 per cent, 31 per cent) was evident with different screening approaches successfully implemented. Both units favoured rapid assessment and intervention.

Conclusion
Dietetic expertise was required for malnutrition assessment, and ongoing management in acute or community setting as determined by differing health-care system arrangements.

Key Words
Clinical services, health services management, models of care, aged care, clinical pathways

Implications for Practice:

1. What is known about this subject?
Australia and New Zealand Medical Assessment and Planning Units (MAPU) standards do not currently include Dietetics. Frequent questions prompted reporting of malnutrition and care provision from two models incorporating dietetics.

2. What new information is offered in this case study?
Dietetic service delivery differed depending upon the units established culture and systems. Malnutrition prevalence (17 per cent, 31 per cent) was evident and different screening approaches successfully implemented.

3. What are the implications for research, policy, or practice?
Where indicated by high malnutrition prevalence, Assessment and Planning Units Guidelines should reflect all applicable health-teams including Dietetics.

Background

Older people are the worlds fastest growing age group.[1] Early malnutrition identification is important as malnutrition increases mortality,[2] increases falls risk[3,4] and decreases quality of life.[5] Identifying and treating malnutrition is fundamental to both quality care and achieving optimal outcomes. Timely nutritional support in the older

population has shown improved outcomes in community or home settings.[6,7]

Medical assessment and planning units (MAPU) are a newer hospital ward model specifically staffed and equipped to assess, care and treat medical inpatients within a designated period prior to ward transfer or discharge home.[8] By streamlining admission for non-critically ill medical patients and expediting comprehensive multidisciplinary assessment, MAPUs reduce inpatient bed block with flow-on benefits to emergency departments.[8] MAPUs are known by many terms such as Acute Medical Ward/Unit (AMW/AMU), Acute Assessment Unit (AAU), Acute Medical Assessment and Planning Units (AMAPU), Admission and Planning Unit (APU), Emergency Extended Care Unit (EECU), Medical Assessment and Coordination Unit (MACU) and Rapid Assessment and Planning Unit (RAPU) for the past decade, have been increasingly established both nationally and internationally. However, literature detailing MAPU models of care is limited.

The Internal Medicine Society of Australia and New Zealand standards for MAPU do not currently include Dietetic services.[8] Questions received from other sites setting up units prompted the authors aim to report the nutritional risk identification, dietetic roles and care provision experiences within two different dynamic MAPU models incorporating dietetics.

Case report details

Unit A opened within a tertiary teaching hospital in February 2007. Monthly activity performance data of all admissions (age, gender, most common presenting complaint) from January to December 2011 was extracted. Dietitians collected annual point prevalence malnutrition data during working hours Monday to Friday. Ethics approval was obtained. Reasons for dietetic referrals were recorded over the same six week period as Unit B.

Unit B opened within a tertiary teaching hospital in February 2011. Patient characteristics (age, gender, most common presenting complaint) of all admissions and the reasons for dietetic referral were completed during the initial six weeks. Dietitians collected malnutrition prevalence data of the admissions Monday to Friday during the initial six weeks. Ethics approval was obtained.

The malnutrition screening tool (MST)[9] questions concerning weight loss without trying and eating poorly were completed by Nursing (Unit A) or Allied Health Assistants (Unit B) (Table 1). MST scores >2 triggered dietitian malnutrition assessments in accordance with the Subjective Global Assessment (SGA).[10] Patients were classified as not malnourished (SGA A), moderately or suspected of being malnourished (SGA B) or severely malnourished (SGA C) with those declining assessment respected as part of usual care practice.[10] Acute psychiatric conditions, paediatric or maternity cases were excluded.

Descriptive data is presented concerning MAPU goals, bed numbers, eligibility criteria, methods of communication within the team, medical models, team composition, foodservice provision, and hospital follow-up. Malnutrition prevalence, malnutrition screening, dietetic referrals and gender are presented as counts and percentages. Age was not normally distributed and so presented as medians and ranges.

Case report results

Models of care differed between units (Table 1). Unit A rapidly assesses general medical patients within 48-hours, informing the discharge destination i.e., ward or usual residence. Unit B accepts patients forecast to be optimally managed within the strict 48-hour time frame. Medical staffing models for the two units are similar; however Unit B allows speciality as well as general medical teams to admit and assess patients anticipated to stay ≤48-hours.

Patient characteristics and the units' most common medical presentations (Table 2) reflect their targeted lengths of stay and discharge destinations. Malnutrition screening and significant malnutrition prevalence (17 per cent and 31 per cent) was established at both units (Table 2).

Both units utilised electronic clinical information systems, communication boards (including patient details, Allied Health discipline referrals, patient progress, expected discharge date and destination) rapid patient-centric multidisciplinary assessment and communication, and regular multidisciplinary team communication with senior representation from nursing, allied health and relevant medical teams at daily multidisciplinary team meetings (Table 1).

Figure 1 summaries key determinants and components of dietetics service delivery for consideration and guidance when establishing units.

Discussion

The findings prompt reconsideration of including Dietetic services within position statements regardless of MAPU

model (8). High malnutrition prevalence was evident within both units amongst their predominantly older client population.

The high malnutrition prevalence identified in both units is important for staffing considerations to enable early identification, reversal and prevention of nutritional decline. Hospital malnutrition is associated with longer lengths of stay; increased healthcare costs, higher morbidity and mortality.[11] Rapid malnutrition assessment and intervention are fundamental to co-ordinated nutrition care and patient flow within short-stay medical units. [12]

Each unit demonstrated different methods for completing malnutrition screening on admission. Unit A's nursing led models effectively achieved high MST completion rates. In contrast, Unit B's MST's were completed more successfully when included within allied health assistant responsibilities compared with nursing staff responsibilities.

Prioritizing malnutrition screening in fast-paced units focusing on discharge planning (Unit B), may present challenges when incorporated into nursing activities and explain lower completion rates compared with units triaging to medical wards (Unit A). Utilizing allied health assistants offered a novel solution for completion (Unit B). The differing solutions employed for successful malnutrition screening emphasises unit differences and determinants for dietetic service delivery approaches.

Only one study to date has investigated MAPU malnutrition, revealing 50 per cent prevalence.[13] Operating similarly to Unit A (triaging patients to wards) its patients were older (mean±SD, 80±11 years) with complex medical conditions frequently associated with malnutrition (e.g., cancer, critical illness). Malnutrition prevalence within Unit A (triaging to ward) and the published study reflects acute hospitals with 41 per cent of patients "at risk" of malnutrition and 32 per cent diagnosed as malnourished.[14] The malnutrition prevalence of Unit B (17 per cent) which aims to discharge people home, reflects community malnutrition prevalence.[15]

Patients confirmed at malnutrition risk were previously identified as more frequently readmitted within 90 days than other MAPU admissions.[16] Consequently, malnutrition screening is an essential care element allowing for the identification and prioritisation of those at risk within limited resources. With one in every four to six MAPU admissions confirmed as malnourished, nutritional screening and dietetic services are identified to be important regardless of the MAPU model employed.

Community access and support for high-risk individuals is arranged following diagnosis of specific clinical dietary problems in MAPU by dietetic services. Close private/public community interfaces are required for ensuring patient intervention and monitoring in the community. Follow-up is vital both for those with malnutrition requiring nutrition support and those implementing behaviour change for chronic disease management to minimise readmissions. The unit models of care and eligibility criteria are key determinants of the patient population and need to be considered when anticipating population needs and demand for dietetic services (Figure 1).

It is evident that the most appropriate foodservice system is influenced by the units' model of care. If often triaging to the ward, (such as Unit A), commencing patient menu selections early optimises oral intake due to selecting preferred choices. However, if discharging home within 48-hours (such as Unit B), less resources are invested in facilitating personalised selections when unlikely to be received, however alternative foodservice processes for high risk patients (e.g., allergies, malnutrition) must then also be considered and accommodated.

Both dietetic services emphasized identifying and treating malnutrition and optimising chronic disease prevention management to prevent readmission. The primary dietetic focus in units triaging to wards (Unit A) is nutrition assessment and hospital nutrition intervention implementation ahead of ward admission or rapid discharge to usual residence. Units with the primary focus to discharge home (e.g., Unit B) provide more dietary education and counselling, link patients with general practitioner and/or community or hospital supports to improve malnutrition and optimise nutritional management of clinical conditions critical for secondary disease prevention. The MAPU ethos of avoiding re-presentations and preventable admissions becomes increasingly important where community dietetic services are limited or non-existent.

Findings highlight that either service model can be effective. Whether the units' key objective is towards community discharge or triage to ward admission determines many aspects of a units design and function. One aspect comprises consideration of the most suitable foodservice system including the provision of selective or non-selective menus. Another aspect for consideration encompasses whether the dietetic intervention model focuses on

immediate medical conditions or secondary chronic disease prevention. A third aspect for consideration involves staff roles (e.g., nursing staff or allied health assistants). with respect to malnutrition screening activity Any trained staff can undertake malnutrition screening, however decisions regarding the optimum staff member depends upon factors including the unit's staffing mix, staff roles, staff capacity and workflows.

Malnutrition prevalence of one in every four to six admissions illustrates a substantial problem in addition to the dietary management of chronic disease. Dietetics provides unique expertise in assessment of nutritional status, nutritional case management, and optimal foodservice provision during admission. MAPU Dietitians also ensure timely malnutrition assessment following screening, advocate and facilitate appropriate education, counselling, referrals and triage to community sectors.

Conclusion

Malnutrition screening, assessment and intervention as well as the dietary management of chronic disease is important to quality care. MAPU guidelines and services need to reflect the inclusion of all applicable health team members, including dietetics where indicated.

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PEER REVIEW

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

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ETHICS COMMITTEE APPROVAL

Metro South Human Research Ethics Committee
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Table 1: Characteristics of Medical Assessment and Planning Units A and B

Units model of care	
Short-stay Medical Unit A	***Short-stay Medical Unit B***
Goal	
To provide rapid assessment and intervention which determines discharge destination, to usual residence ≤48-hours or acute medical ward	To provide rapid assessment and intervention with the goal to discharge all patients to usual residence ≤48-hours
Beds	
16 Beds in total • including a maximum of 4 stroke beds Co-located with a General Medical Day Unit (10 chairs, 2 beds) for Investigation and therapy.	30 beds in total • 12 cardiac monitored beds
MAPU eligibility	
• Undifferentiated problems without diagnosis • Multisystem diseases • Presentations with acute diseases Exclusion • Single organ diseases managed by sub-specialties (cardiology/ thoracic/ medicine) • Non-acute complex presentations or multiple co morbidities admitted to the existing subacute and/or rehabilitation service	Patients with uncomplicated acute or subacute presentations with a predicted length of stay of ≤ 48-hours • General medicine • Subspecialty Cardiology; stable, low to medium risk chest pain without clear myocardial infarction.
Medical model	
• 5 General medicine teams. All teams included on a rotational roster for admitting to the unit	• 7 General medicine teams (including 1 home team for the unit). All teams included on a rotational roster for admitting to unit • 1 Cardiac team • Specialty teams can admit
Re-admissions of less than 12 months are admitted under previous consultant	Re-admissions of less than 12 months are admitted under previous consultant
Patients requiring further admission are transferred to general medical wards and medical team follow care through to the ward.	When patients admitted under the MAPU home team are transferred from MAPU to other wards, care is transferred to a newly assigned general medical team to continue management. All other general medical teams follow care through the ward.
Allied health multidisciplinary team	
Senior Allied Health staff including: Dietetics (Monday to Friday), Occupational Therapy, Pharmacy, Physiotherapy, Speech Pathology, Social Work Allied Health Assistants including: Nutrition assistants, Physiotherapy and Occupational Therapy allied health assistants	Senior Allied Health staff including: Dietetics (Monday to Friday), Occupational Therapy, Pharmacy, Physiotherapy, Speech Pathology, Social Work Allied Health Assistants including: Physiotherapy and Occupational Therapy
Multidisciplinary team communications	
• 0930 hrs: Multidisciplinary Team meeting Monday to Friday attended by allied health, nursing and medical teams including Medical Consultant and/or Registrar and Resident Medical Officer	• 0800 hrs: Multidisciplinary Team meeting 7days Allied Health and Nurse in charge • 1100 hrs: Discharge planning meeting Allied Health, nurse in charge and General Medical teams MAPU Medical Consultant and/or Registrar and Resident Medical Officer from all other general medicine teams
Meal provision	

Selective Menu: Nutrition Assistants provide bedside menu entry, seeking meal preferences for next day meal delivery. Due to variable admission times, ward impress with limited menu items is available 24 hrs a day Protected mealtimes strategies (e.g., uninterrupted meal times, assistance to eat) and consumption audits by dietitians highlight and assist patients at high risk of malnutrition.	Non-selective Menu: Set meal received (cold for lunch, hot for dinner) or as appropriate for any special dietary requirements No Nutrition Assistant. Dietitian completes food preferences and menu entry if patients are awaiting ward admission, require extended lengths of stay, or have significant dietary considerations requiring immediate action (e.g., food allergies, religious/cultural requirements)
Malnutrition screening	
Malnutrition Screening Tool (MST) conducted by Nursing Staff	Malnutrition Screening Tool (MST) conducted by Therapy (occupational and physiotherapy) Assistants
Post hospital follow-up	
• General medical teams provide follow up in existing outpatient clinics • Admission to day unit for investigation, therapy and multidisciplinary follow-up • Community Dietetics • Private Dietitian • Non-government Organisations for Dietetic support	• General medical teams provide standard follow-up in existing outpatient clinics for patients admitted under their team and rapid review clinics for most of the patients admitted under MAPU home team • Community Dietetics • Private Dietitian • Non-government Organisations for Dietetic support
Most common medical presentations	
Urinary tract infection, Tendency to fall, Cellulitis, Stroke, Transient ischemic attack, Pneumonia, Diabetic ketoacidosis	Chest pain, Syncope, Cellulitis, Urinary tract infection, Pneumonia, Arterial Fibrillation, Polynephritis, Heart failure, Chronic Obstructive Pulmonary Disease

Table 2: Patient and nutritional care characteristics

Unit A* (n=3242)** ***January-December 2011	***Unit B (n=153)*** ***6 weeks at commencement of Unit***
Age (years)	
Median 78 (Range 14-107)	Median 62 (Range 17-93)
Gender (% Male)	
44% (1426/3242)	50% (77/153)
Most common dietetic referrals (same 6 week period)	
N=64 64% Nutrition Support 8% Diabetes 5% Renal (includes gout) 5% Refeeding syndrome 3% Weight management (when related to medical condition) 3% Constipation 2% Enteral nutrition 2% Foodservice only 9% Referrals required nil intervention or were missing data	N=56 43% Nutrition Support 16% Diabetes 13% Weight management (when related to medical condition) 7% Cholesterol 5% Renal (includes gout), 4% Enteral nutrition 2% Refeeding syndrome 5% Referrals required nil intervention or were missing data
Malnutrition screening completion (audits results)	
Nursing staff Anticipated Audit 96% (25/26) Unanticipated Audit 85% (11/13)	Nursing staff Unanticipated Audits 29% (22/75) Modified to Allied Health assistance Unanticipated Audits 79% (102/129)
Malnutrition prevalence	
31% (8/26) †	17% (n=11/65)

† point prevalence data

Figure 1: Considerations for Dietetic Models within Medical Assessment and Planning Units

Determinants include:

- Unit model and goals: including discharge destination and length of stay.
- Unit resources: including number and types of beds, specialist equipment (e.g., cardiac assessment equipment) and staffing composition.

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Demand is influenced by:

- Patient population: including characteristics, diagnoses including malnutrition prevalence and chronic disease.
- Community health model: including community resources and services

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Dietetics service delivery model options include:

	MAPU Triaging to ward	**MAPU Discharging home**
Malnutrition screening	Suitable for standard hospital wide systems	Independent of nursing to optimise time for discharge planning
Meal provision	Selective menus	Non selective menus (with strategies to meet essential dietary requirements such as food allergies religious or cultural)
Dietetics model	Assessment and nutrition support	Assessment and nutrition education and counselling
Follow up	Referral at ward level	Referral on discharge from the unit