

# Changing the Way Nurses and Allied Health Professionals Document and Communicate Care in Community Clinical Practice: A Community Care Clinical Data Set

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## Abstract

*Nursing and Allied Health Practitioners (NAHP) account for 85% of all regulated practitioners in the New Zealand health workforce. NAHP often work across health interfaces in primary, secondary and tertiary care, they provide the glue for interoperability of health clinical data.*

*Clinical information is an essential and central element in health information data. To ensure that correct decision making occurs at the right time, at the right place, and that services provided are at the right level in a consistent coordinated way, this clinical information must be valid, reliable, but most of all present.*

*Clinical data sets are crucial in shaping care, structuring interventions, measuring and reporting outcomes. They form the basis for structured clinical documentation processes. The development of a community care data set will be outlined and clinical use cases presented.*

## 1. Introduction

There are increasing pressures on the health system both in New Zealand and internationally to deliver effective and sustainable health care.

Long term conditions are a major challenge for the New Zealand health system, with two in every three New Zealand adults diagnosed with at least one long term condition [1]. They are the leading cause of hospital admissions and account for 70% of health funding and 80% of all deaths [2]. Obesity is a significant driver in health care spending, accounting for an estimated 12% growth in recent years [3]. As our population ages, health care teams age and health workforce shortages are predicted to grow to 23,467 by 2021 [4].

There is an increasing emphasis on the expansion of health care services in the community with the objective of providing a more seamless patient journey, with a shift of care “closer to home”. There is a need for a redistribution of community based secondary and primary care services, and care between professional groups. [5] [6].

The development of care continuums where services such as District Nursing act at the acute/specialist service admission and discharge interface with primary and community care, working across service boundaries, highlights the important role Nurses have in coordinating and communicating care. Although Nursing and Allied Health Practitioners [NAHP] account for 85% of all regulated practitioners in the New Zealand health workforce [7] there is very limited visibility of the care provided and the outcomes of care.

The increasing complexity and acuity of those receiving care in the community places significant challenges upon providers to respond to the diverse expectations and needs of consumers.

The health workforce must change and adapt, creating new models of care, to meet these needs. It is suggested that greater clinical leadership and engagement in decision-making is needed [6].

Clinical information and documentation management is central to enabling the development of new models of care and will inevitably require the workforce to change the way they document healthcare in each practice setting. To ensure that correct decision making occurs at the right time, at the right place, and that services provided are at the right level in a consistent, coordinated way, this clinical information must be valid, reliable, but most of all present.

“Primary care needs a system to measure quality of primary care interventions. This ‘quality-driven’ system needs to be underpinned by what happens between a clinician, the patient and his/her family. Information gathered at this level can

then be summarised to measure the quality improvements generated by primary care interventions on the enrolled population. To be most effective in helping primary care clinicians meet the needs of their patients, this information has to be available to them as they work with patients.” [6].

## **2. Nurse Led Specialist Clinics; Progressive Models but Legacy Systems**

NAHP have a significant and successful role in initiating, implementing, evaluating and leading care [8-12]. Nurse Maude, a community based health service provider bringing services to more than 400,000 people in Canterbury, has three nurse led specialist clinics providing wound care, stomal and continence services.

The current care models employed by these clinics are exemplars of the transformation suggested for primary health care. Like many health care organisations, Nurse Maude legacy information systems contain limited clinical information to support decision making and lack interoperability with other service providers.

Currently nurses and allied health practitioners document the care they give as narrative, commonly in the form of progress notes. Care is driven from structured assessment and is informed by existing best practice guidelines. Various specialties keep separate progress notes, which often results in clients with complex care needs having multiple progress notes.

The following case study illustrates the challenge of using legacy systems within the Paediatric Continence Service. Identifying details have been removed from the case study to ensure anonymity.

G is a 7 year old New Zealander who presented to a Public Health Nurse (PHN) with daytime wetting at school. This appeared to be an ongoing problem. The PHN undertook a generalized assessment. G appeared to have achieved normal milestones and medical history was unremarkable. G is the only child in a single parent family. Family history revealed a strong maternal history of night time bed-wetting traced back to the maternal grandmother. Behaviourally there were no concerns identified by the school, however G’s mother did indicate issues of temper tantrums and difficulty following instructions.

The PHN initiated care. Observations of time toileting patterns and fluid intake were recorded manually. Water bottle fluid management plans were developed and voiding diary, void pattern and fluid balance charting commenced. These formed the basis of a paper based care record.

G was concurrently under the care of a General Practitioner and was prescribed Oxybutinin 2.5mg daily for this specific problem.

### **2.1. Primary Care Referral**

The Public Health Nurse decided to refer G to the Nurse Maude Nurse Led Specialist Continence Clinic. This referral was made by phone with oral representation of care history and need. No written referral was received by the service. G attended the specialist continence clinic accompanied by a caregiver and an extended structured paper based specialist assessment was undertaken. Additional relevant clinical information was discovered. G had a lifetime problem with wetting, both day and night and was never reliably toilet trained. Additionally G was also wet when laughing, giggling and/or when playing on the trampoline.

Specialised clinical investigations were undertaken at the clinic, including bladder scan and ultrasound. Following uroflometric testing of pressure, bladder capacity was calculated. Urinalysis was also undertaken and analysis was manually requisitioned.

These investigations confirmed an alteration in bladder function.

Following positive urinalysis identified by the Laboratory results received by mail, further investigations were ordered by the continence specialist; the results communicated to the General Practitioner initially by phone and followed up by letter. Extensive health education, focused on anatomy and physiology, exercise strategies, and normalcy relative to peer group, was provided to G and their caregiver. Behaviour modification strategies were suggested to G to employ with peers. Ongoing case management and monitoring was undertaken by the service and specialist physiotherapy services were provided by the multidisciplinary team.

## **2.2. Specialist Referral to Secondary Care Outpatient Services**

Following the results of the investigations at the clinic, G was referred by the specialist continence nurse to Urological services at the local District Health Board. A written letter of referral was made and the PHN and General Practitioner were informed of the plan of care for G and the status of the referral to specialist services.

No acknowledgement of the referral was provided by the specialist service, necessitating follow-up from the continence clinic to confirm referral status.

G was seen by secondary care services; however no report providing outcomes and/or follow-up was received by the continence service.

## **2.3. Postscript**

Ongoing case management highlighted that when G returned to school continence fluctuated. At a subsequent visit G confided about being bullied at school. This was one of a number of contributing factors. G's caregiver had been providing over the counter medicines (OTC). These OTC medicines had not been identified on initial referral or subsequent case management discussions with the GP.

## **2.4. Implications for Service Delivery**

Information is largely unstructured and uncoordinated between services. The quality and timeliness of clinical information is inconsistent and the structure derived from the assessment tools is not necessarily transposed into the plan of care. There are limitations to sharing critical information between services and team members. A lack of reporting between health care providers about interventions and outcomes of episodic care potentially compromises collaboration with care. Reporting of outcome measures is limited and clinical coding /reporting linked to care provision is minimal.

There are many challenges facing integration of services in the community. Interoperability of information at organisational and professional levels is essential. It is important that all community care provider information systems adopt common standards for the capturing, sharing and transfer of data.

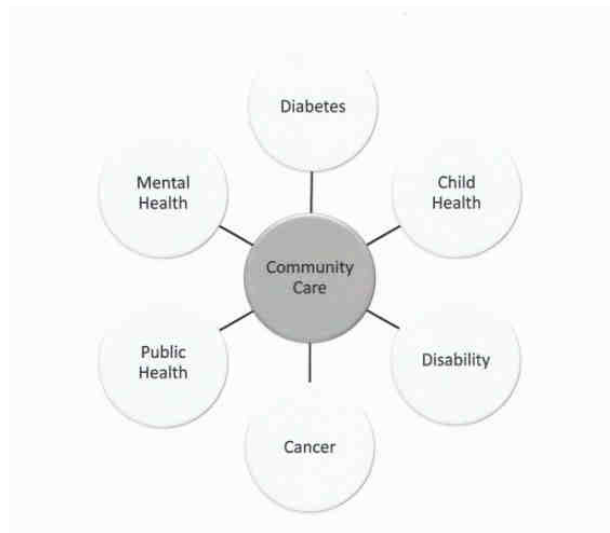
In terms of clinical data, a standardized and structured clinical data set which forms the basis for structured clinical documentation processes for community nursing and allied health clinical practice is required.

## **3. Community Care Clinical Data Set**

There is an absence of Nursing and Allied Health clinical information included in current community data sets in New Zealand. This absence is not confined to the New Zealand experience. A review of clinical data elements in the National Health Service in Scotland and minimum community data sets in Australia revealed very limited clinical data. The NHS (Scotland) has recognized the need for clinical information development [13]. The Australian national minimum data set for home and community care does not include clinical data domains suggested by this project [14]. Nurse Maude is embarking on a project to develop a community care clinical data set (CCDS) which would inform the development of Primary Health Care Data and underpin the development of a community clinical information system, deployed at point of care.

The Community Care Clinical Data Set (CCDS) provides a formalised structure to accurately and consistently document, store, aggregate, retrieve and communicate data which supports coordinated community nursing and allied health care in the community. The CCDS will be developed to integrate with standardised interface and reference terminologies to provide clinical data interoperability across community care.

Community care is complex. The CCDS is one of many clinical data sets within Primary Health Care. It is envisaged that the CCDS will inform and be informed by a number of complimentary and interoperable clinical data sets, shown in figure 1.



**Figure 1 - Primary Health Care Clinical Data Sets**

As new primary care models emerge the underlying data sets need the flexibility to adopt, adapt and cross currently defined care structures [5].

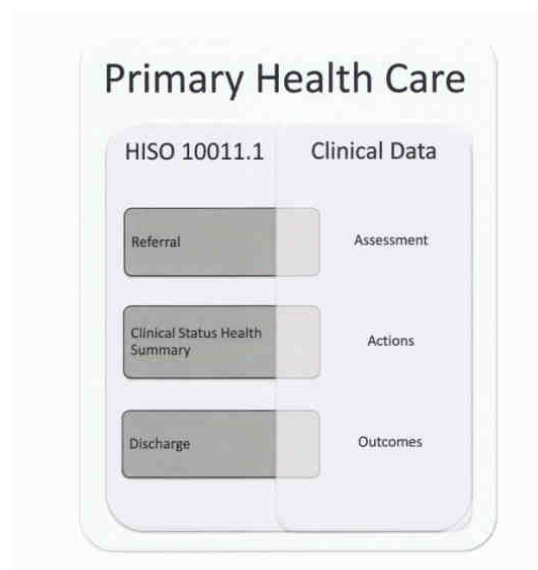
It is tempting to define the boundaries of the CCDS as simply chronic disease management, however this would fail to adequately address the complexity and interdependence of care delivered in the community, where health promotion, prevention and education occur at many touch-points.

Alignment with national health information initiatives is essential for scalability and interoperability. The CCDS should inform or be informed by the action zones developed by the Health Information Strategy Action Committee. E-Referrals, e-Discharges and Chronic Care are the key actions zones through which the CCDS is going to support more visible and coordinated clinical care.

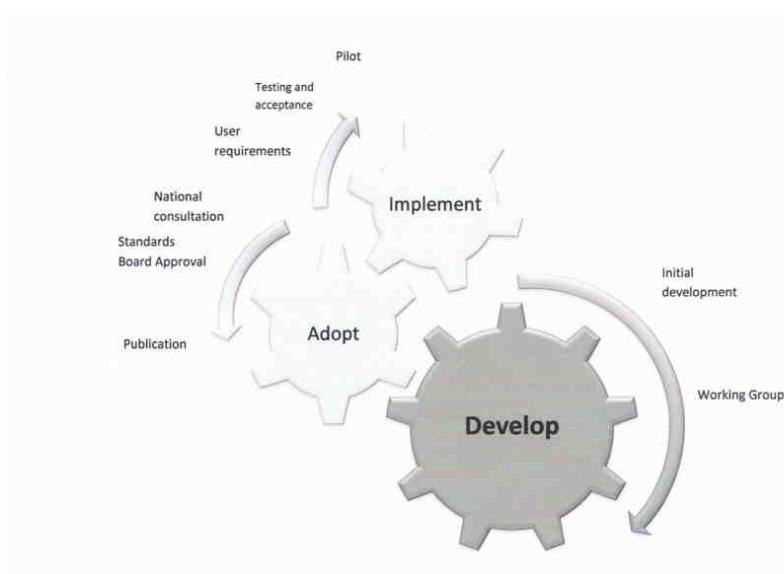
The Health Information Standards Office (HISO) published standard HISO 10011.1 which addressed Referrals, Status and Discharges [15]. The inclusion of clinical data supporting this data standard is shown in figure 2.

#### 4. The Development of a Community Care Data Set

Although slightly different in process, the models of dataset development can be distilled to contain the phases of Development, Adoption, Implementation, Maintenance and Governance [16,17]. Figure 2 outlines the first three of these phases.



**Figure 2 - Primary Health Care Clinical Data**



**Figure 3 - Data Set development**

The scope of this project is the development of a CCDS only. It would provide a product which is ready for national consultation, the first stage of the process. The adoption and implementation to pilot would be the outcomes of further project work.

#### **4.1. Initial Development**

Following the scoping of the CCDS, a project board and team was established. Team members were sourced from expertise areas of terminology, nursing and allied health care delivery, patient information systems, project evaluation and research and publication.

A requirements analysis was undertaken to guide the selection of terminologies to support the CCDS. Any terminologies selected had to have direct application to care in the community and fit with current and anticipated models of community care. They needed to be applicable to a diverse workforce of nursing, allied health, health care assistants and home support workers, provide both a wellness and illness focus, be evidenced and/or research based and able to fit or adapt to the New Zealand health care context. Additionally any terminology needed to describe client needs, provider interventions and provide outcome measurement in the community context. For the CCDS to be scalable any terminologies needed to align with the Primary Health Care Strategy [18] and the Health Information Strategy for New Zealand [19] and be mapped to a reference terminology for interoperability. Given that New Zealand is a charter member of the International Health Terminology Standards Development Organisation (IHTSDO)[20] SNOMED CT was identified as this reference terminology.

A systematic review of structured clinical assessments, clinical guidelines and outcome measures currently used in community nursing and home care at Nurse Maude was then undertaken for “current fit” terminology selection.

The review found that referees to Nurse Maude provided both structured and unstructured assessments. In community nursing these were often unstructured. In older persons health care however, with the rollout of the InterRAI suite of instruments and the piloting of the restorative model of care [21], referrals were largely structured. Included in the InterRAI suite are the InterRAI HC (Home Care) instrument, which contains 27 Clinical Assessment Protocols [CAPs], activities of daily living [ADL] scales, screening and case mix instruments and the InterRAI CA (Contact Assessment) instrument, which supports intake processes [22].

Additionally, the review identified Nurse Maude deploys a suite of comprehensive paper based structured assessments across community nursing (including specialist led outpatient clinics), palliative and home care services which are based on best practice and supported by evidenced based clinical guidelines. Outcome measures focused on clinical indicators such as wound healing rates, surveillance of infections pressure areas and falls, and incidents such as needle stick injuries, medication errors and environmental hazards.

The review concluded that any terminology(s) selected in addition to the above requirements needed to integrate with the outputs from the InterRAI suite of instruments.

A review of international and national health clinical terminologies was undertaken by the terminologist members of the project team. The interface terminologies [23] such as the Nursing Intervention Classification (NIC), the Nursing Outcome Classification (NOC), the International Classification for Nursing Practice (ICNP), and the Omaha System were identified and compared [24]. Data sets such as the Nursing Minimum Data Sets (NMDS) in the United States, Netherlands [25] and Ireland [26], together with the Nursing Management Minimum Data Set (NMMDS), were also compared [27].

Analysis of the cross mappings of the terminologies and mapping with the reference terminology SNOMED CT was undertaken [28-30] and recommendations made to the project team.

The Omaha System, together with the Nursing Minimum Data Set and the Nursing Management Minimum Data Set were selected by the project team to support the development of the CCDS.

The Omaha System is a research-based, standardised taxonomy designed to enhance practice, documentation and information management[31]. The Omaha System consists of three components; a Problem Classification Scheme, Intervention Scheme and Problem Rating Scale for outcomes [32]. The relationship between these schemes is displayed in Figure 4 [33].

The Omaha System was chosen because it is a comprehensive, yet simple tool used by nurses and other interdisciplinary healthcare practitioners that can be used across healthcare settings from admission to discharge. Although it was initially developed for community care and public health, its use has been expanded internationally to include nurse led community clinics and early discharge/transition services. The system describes the wide variety of health problems and care interventions that are encountered in community care and can be mapped to both the InterRAI suite of instruments and SNOMED CT. [24,28, 32,34-37].

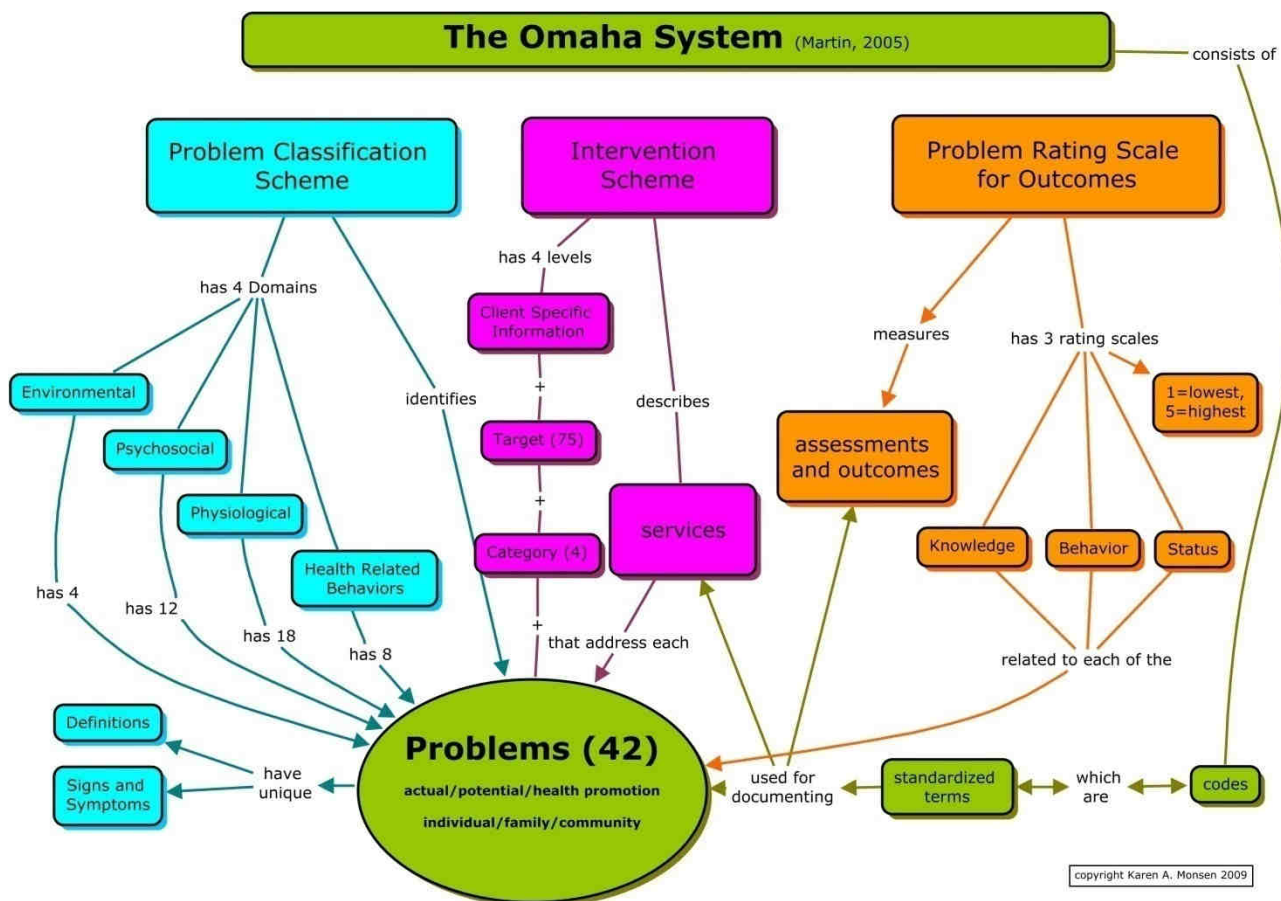


Figure 4 - The Omaha System

## 4.2. Working Group

A working group of experienced clinicians from regional community nursing services was established. The function of this group was to guide the development of the terms and associated definitions of CCDS.

To date an iterative process of term definition has commenced. Nurses and allied health practitioners have been asked to identify and describe, using a structured tool, the focus for care and interventions undertaken in daily clinical practice. In particular, clinicians have been encouraged to identify colloquialisms of practice that may be unique to the New Zealand context. This should result in a list of terms and associated definitions derived from clinical practice and based upon best practice principles. As the terms will be those that describe the activities of practice, they will be able to be used in community nursing and allied health clinical practice to describe care delivery in a standardized way. The terms and definitions will be structured and a data dictionary of community care clinical data developed. A potential community care SNOMED-CT subset may be developed as a result of terminology mapping.

These products are likely to inform national primary health care information directions for nursing and allied health. Following national consultation, approval and publication, the products would be available for implementation by other primary health care organisations and practice management systems vendors to use.

## 5. The Community Care Clinical Data Set in action

Use Case Scenario: Complex Community Care outlined in figure 5.

M is a 65 year old New Zealander who presented to her General Practitioner with a recurrent pressure ulcer. 3 months earlier M had been travelling to visit family in another centre and had fractured her right hip. At that time she was hospitalised for acute care and commenced rehabilitation following discharge into her son's care. During this time M developed a pressure ulcer which was successfully treated by community nursing services. She returned home, where she now lives with her husband.

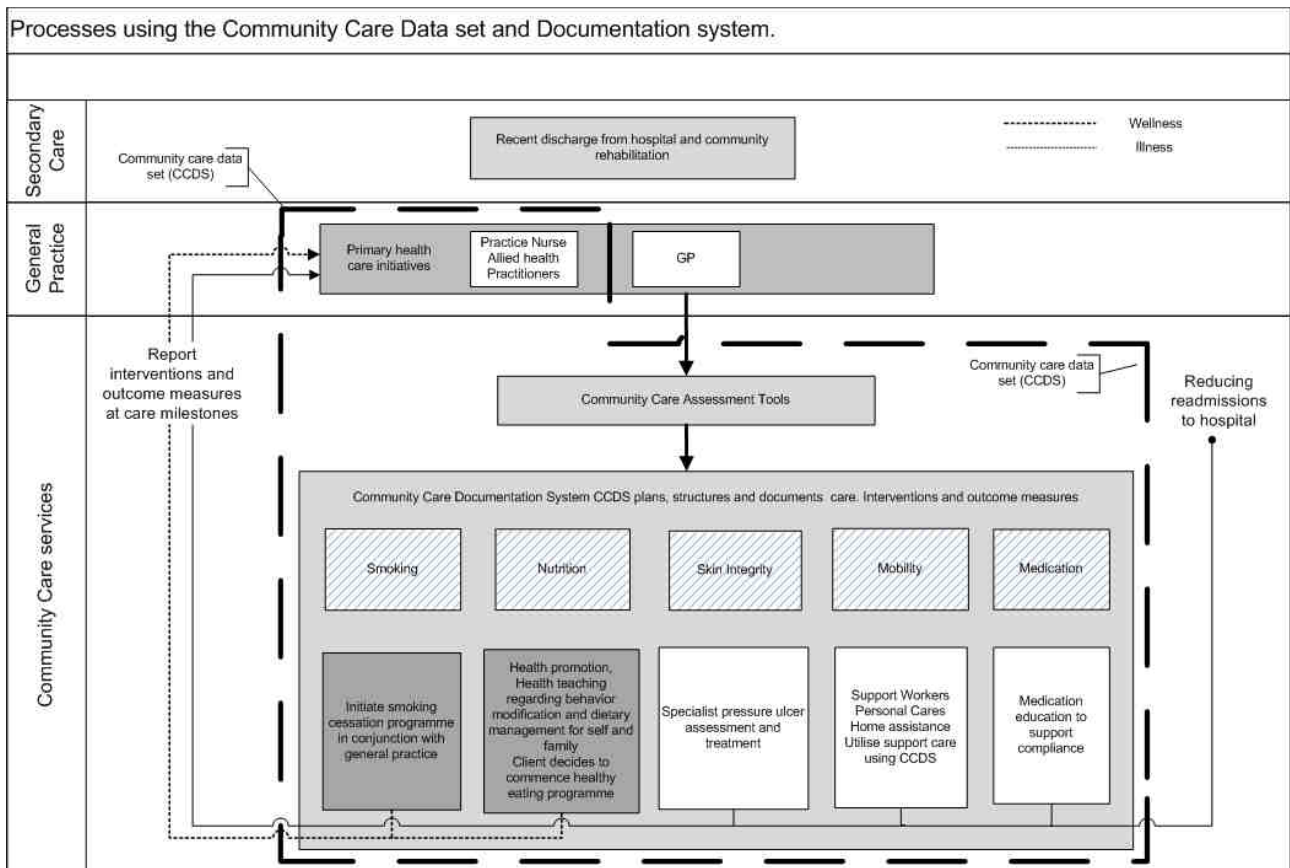


Figure 5 - The CCDS in action

Concerned about the re-emergence of a pressure ulcer, M presented to her General Practice. She was initially assessed by the practice nurse and then seen by the General Practitioner because the area was infected and required medical intervention. M was prescribed antibiotics and referred to the local district nursing service for pressure ulcer treatment. M understood that this care would be undertaken in her home and was visited by a Registered Nurse the following day.

The registered nurse established contact with M and completed an assessment using the Community Care Data Set (CCDS).

Although the initial focus for the referral was pressure ulcer care other issues became apparent. Using clinical judgment and the information gathered during the assessment the nurse, together with M, identified 3 foci of care.

**Skin Integrity:** A specialist pressure ulcer assessment is undertaken and treatment is commenced in accordance with clinical guidelines. The nurse decided to swab the wound.

**Smoking:** M has been a smoker for a number of years. She has tried to give up smoking in the past without success. Following her recent hospitalisation she again decided to stop.

**Medication:** M showed the nurse the medications she was taking. M said that “medications these days are too expensive and (she) was not sure about taking any more after this prescription finishes.” She was unclear about when to take the antibiotics.

Additionally the nurse identified two other points of care.

**Nutrition:** The Nurse noted that M is overweight and M says she has been having difficulty preparing meals, and given economic circumstances is not eating properly. M said that this is not an issue for her.

**Mobility:** Despite a recent fall M said that she has no ongoing problems with mobility, is moving around “ok” and declined the offer of domestic support saying that her husband “needs to get off the chair occasionally and do some work!” The nurse was concerned that a further fall would increase the likelihood of an admission to hospital and plans to revisit this on subsequent visits.

The nurse suggested some care options and with M’s consent, a plan emerged:

The nurse would visit the following day to review the pressure area. The Nurse provided information to M on the schedule and type of treatment, infection precautions, sign of skin breakdown and ways to promote healing.

The nurse was concerned that non compliance with prescribed medications would increase the likelihood of readmission to hospital and placed this as a high priority. Information on the medications taken by M, prescribed and non-prescribed was discussed.

To assist M cease smoking, the nurse suggested the smoking cessation programme offered through the General Practice and M was happy for her details to be given to the practice to initiate the programme.

Following the visit, the Nurse made contact with General Practice.

The nurse informed the practice nurse/GP on the initial assessment interventions and outcome measures; highlighted the health promotion measures, treatments and the surveillance activities undertaken. Following confirmation of health subsidies available, the nurse agreed to discuss these options with M at the next visit.

The nurse highlighted to the practice that Nutrition and Mobility are issues for future consideration and indicated that they remain on the treatment radar. Laboratory result notification and subsequent actions were communicated between the primary providers.

The community care agency reported interventions and outcome measures at care milestones of initial assessment, significant care event, and upon discharge from episodic care.

## **6. Conclusion**

Clinical information is an essential and central element in health information data. To ensure that correct decision making occurs at the right time, at the right place, and that services provided are provided at the right level in a consistent coordinated way, this clinical component must be valid, tested, robust but most of all present.

The clinical case studies discussed have illustrated the complexity of community health services and clearly supported the role and importance of a Community Care Clinical Data Set.

There is an absence of Nursing and Allied Health clinical information included in current data sets. The development of a Community Care Clinical Data set provides challenges, but also opportunities to develop new models of care for the health care of the future.

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