

DRAFT FOR DISCUSSION

Clinical Design Framework for Remote Telemonitoring NI (RTNI) Managed Service

Amended Version – 23.4.2008

Ver. 2.0

Preface

In Northern Ireland, as in other developed countries we have an ageing population. Our health service is funded by taxation. There is a predicted growth in the pensionable age population of 64% between 2006 and 2046; and the over 85 population will more than double over the next 20 years.¹ This presents a dual challenge for our health service. Firstly we can expect an increase in health service utilisation as a result of more people living longer, with the consequent increased prevalence of chronic disease and secondly this is likely to place an increasing strain on the funding base of the health and social care system. For this reason we need to investigate new ways of delivering healthcare that take on-board the desire to have a more patient centred service while recognising potential shortages anticipated in the pool of skilled healthcare professionals in a global marketplace, and the need for greater efficiency.

Remote telemonitoring is the subject of global interest as a means of delivering a patient centred service capable of dealing with the rising prevalence and importance of chronic disease. There is a growing volume of evidence in the field of telemedicine. Evidence from the literature is strongest for the use of remote telemonitoring in the management of chronic disease, in particular the monitoring of vital signs.

The Department of Health, Social Services and Public Safety is committed to the large-scale implementation of a Remote Telemonitoring service in Northern Ireland with a target of 5000 people with long-term conditions having access to this service by the end of 2011. This clinical design framework sets out the key elements of NI Remote Telemonitoring Managed Service.

¹ NISRA website
Clinical Design Framework for Remote Telemonitoring NI (RTNI)
– DRAFT for discussion

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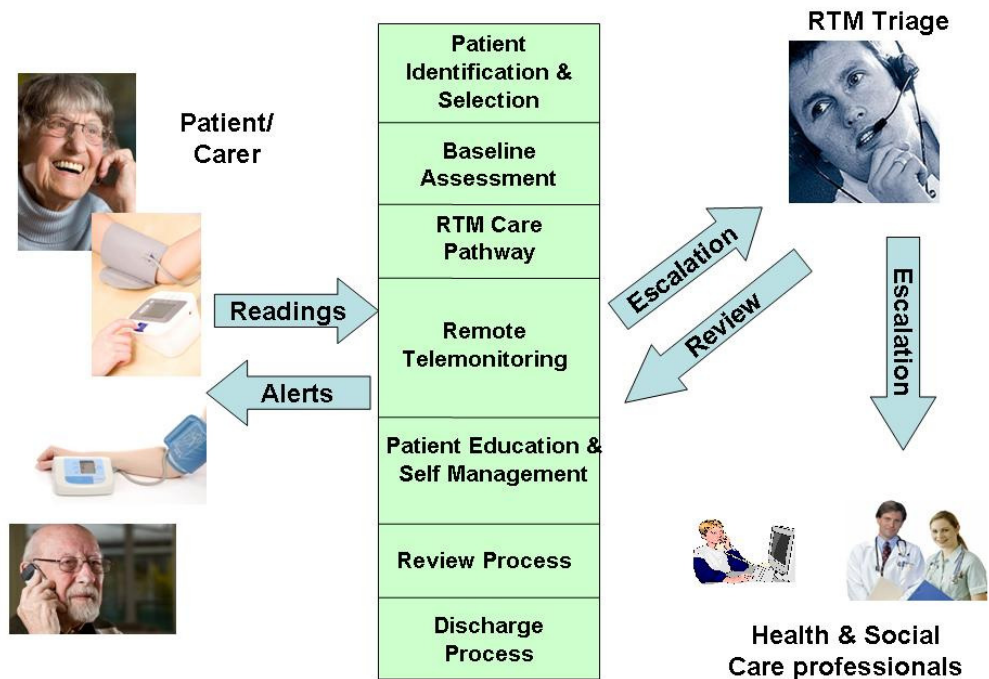
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1 Remote Telemonitoring Northern Ireland (RTNI) Managed Service

Remote Telemonitoring (RTM) is a clinical practice, which involves monitoring an agreed set of clinical parameters (see Section 4 Operational Definitions) for patients who are not at the same location as their clinical provider, usually, but not exclusively, the patient is in their own residence.

Patients can either use one or more monitoring device/s based in their home or mobile device/s outside of their home environment. These devices will transmit information on their vital signs via telephone links or through wireless connections to the RTNI Managed Service provider/ RTNI Managed Service Centre.

RTNI Clinical Design Framework - Overview



2 Key Principles

The RTNI Managed Service reflects the fundamental principles of Equality and Human Rights. The Clinical Design Framework for Remote Telemonitoring will be underpinned by a philosophy which supports the values and rights of the individual, including the right to privacy, dignity, independence, choice, citizenship, and fulfilment. The application of these values in Remote Telemonitoring means that adults have the right:

- To be supported in making their own decision to accept the Remote Tele-monitoring Service with the relevant and necessary information relating to their condition
- To know that their wishes and choices will always be respected other than in circumstances where it is considered necessary for their own safety, or where they are not competent to decide this for themselves
- To know that information relating to their care will be recorded and held confidentially, and only shared with relevant professionals when necessary
- To receive all available information on their care, including clinical measurements, within a reasonable timeframe when requested
- To receive practical help if required and/or to have their nearest relative, informal carer or advocate act on their behalf, where desired
- To be given information about and be supported in bringing a complaint under any existing complaints procedure.

3 Introduction and Objectives of RTNI Managed Service

The aim is to put in place a system of remote telemonitoring, which is universally available throughout the region for those patients that meet the specified eligibility criteria, irrespective of where they live. The service will be subject to regionally agreed parameters, but will afford flexibility in its detail so that it is appropriately integrated into local systems of care.

To a large extent the service will exist to support the care of patients with chronic disease. It will initially focus on heart failure, COPD, and diabetes and the target is to secure access for some 5000 patients with these conditions by 2011. A large number of the selected patients will suffer from more than one condition; a significant proportion will suffer from heart failure. Majority of patients are likely to be on a specified period which will be subject to review.

Patients and clients accessing the service will be identified by a variety of methodologies appropriate to each disease area.

The service provider(s) will be responsible for the provision and installation of the necessary equipment in the patient's home, training of individuals in its use, training of HSC staff, and the collection, retention, analysis and making available the information on vital signs

to the local HSC system. Parameters will be set for individuals by their clinicians according to their needs.

3.1 Objectives of Remote Telemonitoring Service

- To improve the quality of care for patients with long-term condition by appropriate and timely early intervention
- To empower the patient and their carer to manage their own condition by providing them with information, education and support
- To use the resources of the Health Service more effectively and efficiently
- Provide health professionals with better more timely information to enable them to look after vulnerable individuals in the most appropriate way.

3.2 Overview of the RTNI Managed Service

Process Flowchart outlining how the RTNI Managed Service will work is outlined in the Diagram 1 on the next page.

It is currently envisaged that key components of the RTNI Managed Service (including but not limited to) - Service Desk, Technical and Clinical Triage will be provided as a minimum during normal working hours (9:00 am – 5:00 pm), 7 days per week, 52 weeks a year; using appropriately skilled and trained RTNI Managed Service staff.

Patients suitable for RTNI Managed Service will be identified by key professionals and clinical staff. Patients will be selected for remote telemonitoring based on regionally agreed criteria. A baseline assessment will be completed and individual parameters to be measured will be agreed by a multi-disciplinary team and the GP/Hospital Specialist with clinical responsibility for the patient. The patient and the clinician will sign a Doctor/Patient Agreement outlining the rights and responsibilities on both sides.

Once the referral is processed, the RTNI Managed Service provider will proceed to install and commission the required equipment and provide the necessary training. A “settling-in” period will occur where remote telemonitoring will be initiated and patients vital signs are monitored to ensure these are carried out correctly.

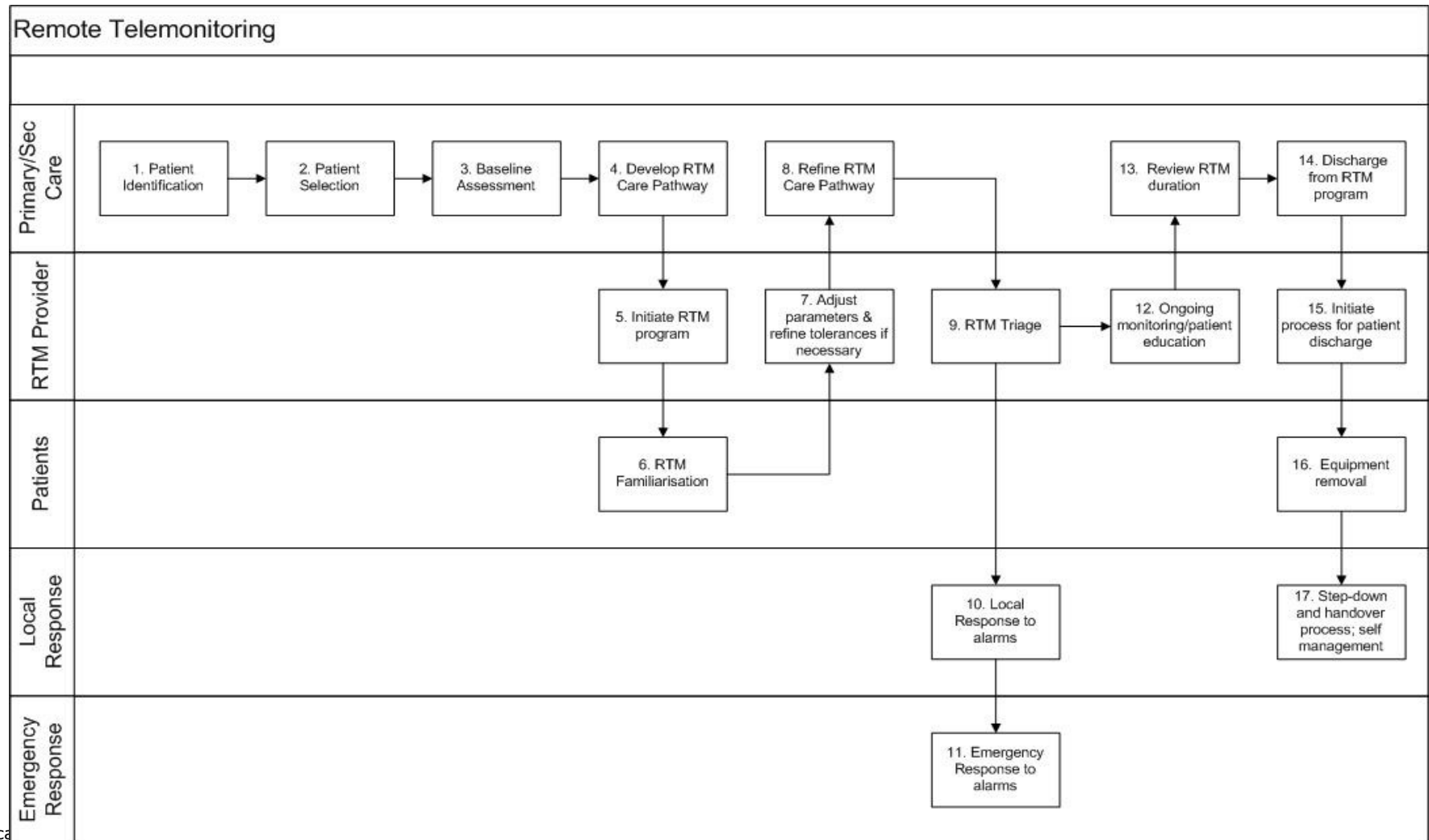
The patients’ clinical parameters will be transmitted to the RTNI Managed Service Centre where the data will appear on a screen. These will be subjected to Technical and potentially Clinical Triage by the RTNI Managed Service provider. These data will either fall within

agreed parameters of “normality” for the individual, or else they will trigger an *alarm* if they fall outside the parameters.

Where appropriate, this information will also be transmitted to their health care provider. When an alarm has been raised the RTNI Managed Service team will contact the patient and the appropriate local response professional according to the identified priority; e.g.: red, amber and green within a pre-determined and agreed timeframe. In the absence of any alerts on the monitoring of the patient’s vital signs, it is possible for the RTNI Managed Service team to contact the patient on an agreed regular basis as part of the RTNI Care pathway (more frequently in the initial monitoring period) to assess progress, enhance patient understanding of their condition/s and promote education and understanding of self-management.

In the absence of any alarms (or in the presence of “minor” alarms as agreed at patient selection), the Centre will make available report on each patient at regular agreed intervals to the necessary healthcare professionals such as GPs, specialist clinician, patient/carer and other key professionals.

Diagram 1 – RTNI Managed Service Process Flow



4 Operational Definitions

4.1 Clinical Responsibility

For the most part, clinical responsibility will reside with the GP. There will also be circumstances where the named clinician is a Hospital Specialist; where highly specialised monitoring or early discharge schemes involve patients in the RTNI Managed Service program]:

The active involvement of GPs in the remote monitoring service is critical as they:

- already have clinical responsibility for patients in the community;
- have access to the full medical history of the patient, particularly relevant in the management of patients with co-morbidities
- have information on the social circumstances and family history which may influence treatment plans;
- are responsible for providing continuity of care and for managing the risk to their patient while they are in the community setting
- are trusted by, patients, families and their carers

GP's and Hospital Consultants will have a specific role in the provision of the remote monitoring service in the following areas:

- Patient Identification
- Baseline assessment of patients going onto the system
- Managing risks and monitoring patients
- Determining and agreeing discharge arrangements

Before RTNI Managed Service can commence there will be a requirement to have a named medical clinician who will accept clinical responsibility with the following functions:

- Ensuring that the monitoring parameters and tolerance limits of each parameter are appropriate for the individual patient at the point of selection
- Putting in place a defined pathway for addressing the outcomes of daily RTNI Managed Service monitoring over the duration of the monitoring period
- Reviewing the parameters to assess the appropriateness of the tolerance limits at the end of the initial monitoring period, usually one or two weeks

- Authorising required changes to the parameters or tolerance limits during the monitoring period and ensure that all relevant healthcare professionals are aware of the changes, including agreement on reporting nature and intervals
- Accepting responsibility for the ongoing management (including prescribing or changing medication or dose of medication), review and discharge process for the patient in agreement with other members of the clinical team (e.g. reviews co-ordinated at a set time each month for patients on remote monitoring)
- Ensuring current arrangements for “out of hours” and leave/absences are incorporated into the Doctor/Patient Agreement including:
 - Arrangements for urgent and emergency responses (i.e.: out of hours services)
 - Arrangements for periods of annual leave and absence, including short notice absence
 - Arrangements to cover weekends and public holidays.

Remote Telemonitoring is an anticipatory and not an emergency Service. However, the RTNI Managed Service Centre can provide information which may help assess the patient in a medical emergency e.g. in the Out-of Hours centre or where hospital admission is indicated. RTNI Managed Service monitoring will not be an alternative for hospital care where admission is clinically indicated.

4.2 Clinical Conditions

The clinical conditions to be considered for RTNI Managed Service are as follows:

1. Heart Failure New York Heart Association (NYHA) Classification Grade 2, 3 or 4.
2. COPD graded as severe, or moderate if other co-morbidities exist.
3. Diabetes may include patients with
 - a) Other co-morbidities that might lead to frequent admissions
 - b) Type II converting to insulin
 - c) Type II with sub-optimal glucose or blood pressure control
 - d) Either pregnant or preparing for pregnancy
 - e) With poor control preparing for major surgery or in post-operative period
 - f) Type I diabetes in order to optimise control.

Other clinical conditions not listed above will only be considered initially if there are special circumstances or co-morbidities of lesser degrees of severity than outlined above. The scope of the RTNI Managed Service may expand in the future to encompass other clinical areas.

Many patients will enter the RTNI Managed Service with co-morbidities. For the purposes of the program, one clinical condition should be designated as the primary condition and monitoring should be focused on this. This should not exclude the need to monitor other parameters in some patients that are not directly related to the major problem; i.e. blood glucose in heart failure or COPD, as some of the medications may induce higher blood sugar levels.

Communication between teams and within the multidisciplinary team is very important. In a situation where a patient has co-morbidities and is being looked after by specialist teams, clear lines of accountability will be established for conditions other than the designated primary condition.

4.3 Clinical Parameters to be Monitored

The patient will be monitored on the “hard” (objective and measurable) parameters as outlined below for each of the 3 main clinical conditions. In addition, each patient will be monitored on a number of “soft” (subjective) as appropriate to each clinical condition – the information needed will be obtained through a series of questions which will be designed to elicit a “yes” or “no” answer to relevant clinical issues, which the patient will answer at the same time as they transmit the details of the “hard” data to the central monitoring station.

4.3.1 Chronic Heart Failure (CHF)

1. Weight
2. BP
3. Pulse
4. One Lead ECG (optional for some patients)

4.3.2 Chronic Obstructive Pulmonary Disease (COPD)

1. Pulse/Heart Rate
2. Oxygen saturation
3. Temperature.

4.3.3 Diabetes

1. Blood glucose.
2. Weight (optional for some patients)
3. Blood pressure (optional for some patients)
4. Pulse (optional for some patients)

4.3.4 Database Questions for use in RTNI Managed Service

The questions should probably not exceed 5 in total and be capable of being answered by a “Yes” or “No” answer. The questions may vary between patients but should be drawn from the primary list below.

CHF:

1. Have you any new or worsening shortness of breath?
2. Have you any new or worsening swelling of your feet?
3. Have you had any recent chest pain or tightness in your chest?
4. Have you become more breathless lying in bed?
5. Have you had any new or increased level of dizziness or light-headedness on standing?
6. Have you missed any of your regular medication?
7. Have you had any problems since the last change in your regular medication?
8. Have you had any increased cough?

COPD:

1. Have you any new or worsening shortness of breath?
2. Have you had any increased cough?
3. Have you any new or increased sputum production?
4. Have you had any change in the colour of your sputum?
5. Have you had any recent fever or chills?
6. Have you had any recent chest pain?
7. Have you had to reduce your recent level of activity?
8. Have you had to use the blue inhaler more?
9. Are you using more oxygen than usual (if applicable)?
10. Have you missed any of your regular medication?

Diabetes:

1. Have you noticed any increase in tiredness?
2. Have you noticed any increase in thirst?
3. Have you noticed you are passing more urine?
4. Have you had any recent chest pain or tightness?
5. Have you had any new or increased level of dizziness or light-headedness?
6. Have you been careful with your recent diet?
7. Have you missed any of your regular medication?

Patients with multiple Long Term Conditions (LTCs) will require a combination of questions. The triage monitor may have a series of supplementary questions (see Section 10 - Clinical Triage section), which could include any of the above not on the primary list for the patient, or drawn from an alternative validated list appropriate to the individual patient's need. These questions would be triggered by alarms arising from the hard (objective) parameters or the soft (subjective) parameters.

4.4 Tolerance Limits

Tolerance limits are set for each parameter. The tolerance limits will take into account the variability range of the specified monitoring equipment. At the initial stage of monitoring the patient and responsible clinician will work together to adjust the tolerance limits to achieve the most appropriate limits for the patient. At that stage the limits should not be altered by other involved professionals, unless there are exceptional circumstances. During the subsequent period of monitoring, the responsible clinician may choose to alter the tolerance limits for a parameter in a particular patient for clinical reasons, and according to an agreed protocol.

Changing of the tolerance limits should be exceptional rather than usual, and should be reviewed at regular intervals in the light of the clinical condition and the patient's progress. Any such alteration must be taken in consultation with the other health professionals involved in RTNI Managed Service and be clearly communicated in writing to the RTNI Managed Service Centre and all involved in delivering care to that patient.

4.5 Tolerance limits for parameters

Vital signs	Tolerance Limits
Weight	Initial weight recorded for each patient.
	Weight tolerance of initial +/- 2lbs (1Kg) over 24 hours, or 1.5 kg over an extended period up to 1 week sustained for over at least 3 days (CHF).
BP	a) In diabetes: 130/80 or less
	b) In CHF/COPD 145/85 or less. To be set at an individual level for CHF in some cases.
Pulse	50-90.
	Report any new irregularity.
	Report on irregularities in trends, i.e. increased heart rate

	for CHF.
Oxygen saturation	>86%.
Temp	37C +/- 0.5C
Blood glucose	a) 4-14mmol/l range in diabetes with co-morbidity b) 4-6mmol/l pre-prandial in patients converting to insulin c) 4-6mmol/l pre-prandial and <8 post-prandial in pregnancy d) <6mmol/l pre-prandial in Type II with sub-optimal control e) In Type I or pre/post-op monitoring, targets to be set by responsible clinicians

5 Patient Identification

Patients can be identified for possible referral to RTNI Managed Service by methods including the following:

1. A hospital specialist
2. A GP
3. Other healthcare professional e.g. case manager; care co-ordinator community multidisciplinary teams, specialist nurses, AHPs and district nurses
4. Social Care
5. Through other means such as through a structured approach agreed with the Trusts
6. Others include outpatients, A&E etc.

When the patient has been identified as a possible candidate for RTNI Managed Service, the information is passed to a designated person in the Trust whose role as the RTNI Co-ordinator, is to facilitate the RTNI Managed Service program for that patient and ensuring that all the requirements have been met.

Key responsibilities for the RTNI Co-ordinator include:

- Co-ordinating the referral and selection process
- Ensuring the baseline assessment takes place and is completed
- Co-ordinating the development of the RTNI Care pathway and ensuring the completion by all relevant healthcare professionals
- Ensuring a clinician with prescribing rights is prepared to accept clinical responsibility

- Co-ordinating the review process
- Co-ordinating the discharge process
- Facilitating any audit and evaluation process

This transfer of information will normally occur by filling in a pro-forma questionnaire (or a referral form), which should be standardised and may be in electronic format.

6 Patient Selection

The selection of patients will depend on the following:

1. The presence of a clinical condition defined according to the criteria
2. The consent of the patient or their legal guardian
3. The suitability of the patient and home environment, or suitability and availability of their carer or the home carer to participate in the program, will be assessed.
4. The consent of the GP or specialist to take clinical responsibility (including prescribing) for the patient
5. The capacity of the RTNI Managed Service program to accept patients.
6. Type of phone capacity – mobile vs POTS
7. The signing of the Patient/Doctor Agreement [The Agreement will cover issues such as privacy and confidentiality of data, informed consent, and rights and responsibilities of both parties]

Selection will usually require a face-to-face consultation with the patient to explain the purpose and benefits of the RTNI Managed Service program, as well as address any clinical and consent issues. If the selection criteria have been met, a baseline assessment will take place.

The severity of the patient's condition should be considered and the frequency of hospital admissions, where the cause of admission is related to an exacerbation of their chronic condition. Suitable home circumstances and a belief that the patient will co-operate in the program should be taken into account

The need for monitoring should be considered particularly in the context of patients where there has been a recent emergency admission, high health care utilisation, or a reasonable expectation that this is likely in the near future. All criteria should to be met under normal circumstances. A clearly defined pathway will be required for selection of a patient.

If not directly involved in the selection, the referrer/initiator and the relevant multi-professional team including care co-ordinator/case manager will all also need to be informed of the decision.

The patient/carer will be informed of the decision and be referred to the RTNI Managed Service Centre. A leaflet giving explanation of the RTNI Managed Service program should be provided to the patient/carer and the initial referral form will be sent to the RTNI Managed Service Centre (if in manual format) or approved (if in electronic format).

6.1 Installation

Upon receipt of the referral form, the RTNI Managed Service Centre will initiate contact with the patient/carer and arrange for a suitable time to install the necessary equipment in the patient's home.

The RTNI Managed Service technical personnel will carry out the installation of all the required RTNI Managed Service equipment in a safe manner and in compliance with Trusts' health and safety guidelines. He/She will commission and test equipment to ensure they are working properly.

The RTNI Managed Service technical personnel will also train the patient/carer on the use of all the equipment and will ensure the patient/carer is confident and competent on the usage of the equipment. A user guide and relevant contact numbers for the RTNI Managed Service Centre will also be provided for the patient/carer.

6.2 "Settling-in" period

During the initial settling in period, patients will receive courtesy review calls from the RTNI Managed Service Centre a day after the installation of the equipment. They will also receive another review call within the week and if necessary, a review visit by the RTNI Managed Service technical personnel will be requested and the patient will be contacted within 24 hours for a suitable visit to be made.

All information obtained during any review visit will be documented and passed to the designated Trust RTNI Managed Service Co-ordinator.

7 Baseline Assessment

Baseline assessment is needed to capture information to be compared and evaluated at a later stage to demonstrate the effectiveness and benefits of RTNI Managed Service. The person who will have clinical responsibility will ensure the baseline assessment is completed.

Key information for baseline assessment is as follows:

- Key condition indicator/s

- Relevant medical problems
- Key clinical parameters
- Any patient specific parameters
- Key tolerance limits
- Medication regimen
- Reason/s for referral and possible outcome/s
- Available information on number of visits to GP/hospital and admissions to hospital.

8 RTNI Integrated Care Pathway

All actions to be taken by the RTNI Managed Service Centre must be guided by a clear and precise **RTNI Integrated Care Pathway** designed for each patient taking into account their condition/s.

At the minimum the RTNI care pathway should clearly outline the following:

- Patient details
- Carer's and Next of kin's details (minimum 3)
- Patient GP details
- List of all medications/allergies and intolerances
- Person with overall clinical responsibility
- Primary and secondary conditions (if more than one complex condition)
- Healthcare professional for local response (during working hours)
- Healthcare professional [or service] for local response (out-of-hours)
- Definition/tolerance limit for “minor” alarms and associated escalation path
- Definition/tolerance limit for “major” alarms and associated escalation path
- Agreed set of question/s for 1st phase of clinical triage
- Emergency response up to and including “999” ambulance
- Proposed duration of RTNI Managed Service monitoring.

The pathway should be agreed at the selection stage in conjunction with the patient/carer and relevant healthcare professionals e.g. GP, specialist nurse, case manager, hospital clinician, as well as the person with the overall clinical responsibility.

The pathway should outline all the necessary steps to be taken. It is important that the RTNI Managed Service technology is seen as an aid to encourage self-management as well as an alert for early intervention. Patient education on alert symptoms and appropriate response (increase medication, call GP, call 999 ambulance, etc.) should be central to the programme with a view to facilitating patient empowerment and management of their condition more confidently. Changes to patients' parameters should be provided to the RTNI Managed Service Centre within pre-agreed timescales.

Outside of the professionals directly caring for the patients, a number of service points identified within the patients care pathway may need to be informed about the patients' participation on RTNI Managed Service.

9 Duration of RTNI Managed Service Program

Once approved the patient will be placed onto the RTNI Managed Service program for a period of up to 3 months (depending on clinical need). The program will cease after the agreed period, unless there is clear evidence of on-going clinical benefit to the patient, agreed by the healthcare professionals, in a formal review of the status before the end of the initial period. The designated Trust RTNI Managed Service co-ordinator (or equivalent) will be responsible for co-ordinating such a review.

10 RTNI Managed Service Triage

10.1 Technical (non-clinical) Triage

Definition:

Technical Triage is an assessment of patient's alert normally carried out by a technical (non-clinical) member of the RTNI Managed Service team to ascertain if equipment malfunction or error in measuring the vital signs has caused the alerts. Technical Triage is also carried out in the event of a failure to receive patient data within an agreed timeframe.

An initial technical triage of the data takes place in one of two situations:

1. When an alarm is triggered;
2. When patient's data is missing i.e. not received by the RTNI Managed Service Centre.

In the former, the RTNI Managed Service team will contact the patient to ascertain if data is being transmitted erroneously as a result of technical errors (such as incorrectly placed BP cuffs) or equipment malfunction. This may involve asking the patient to retake their vital signs after a short rest.

In the latter case, the RTNI Managed Service team will contact the patient initially and ascertain the reason why they have not transmitted their vital signs [such as equipment failure or patient unwell]. Should it not be possible to contact the patient, the RTNI Managed Service team would contact the patient's carer/next of kin (up to 3 contacts) and if necessary escalate the issue to the designated health care professional at the local response level.

10.2 Clinical Triage

Definition:

1st line Clinical Triage refers to a clinical assessment of the patient's alert normally by a trained healthcare professional of the RTNI Managed Service team (RTNI Managed Service Triage Nurse) after the technical triage.

After conducting the technical triage and ascertaining that there is no equipment malfunction and the alarm is clinically related, the next phase of the process is to carry out a clinical triage.

A 1st line clinical triage by the RTNI Managed Service team (trained health care professionals) may take place in one or more of the following circumstances:

1. To address issues relating to "minor" alarms; i.e. small changes to the tolerance levels of the clinical parameters as agreed by clinicians in agreed care pathway; this could include asking patients to re-take and re-transmit their vital signs for confirmation.
2. To elicit more information from the patient by asking a question or questions from an agreed databank designed to clarify or elicit more detail on clinical issues.
3. To take necessary actions as defined within that patient's specific RTNI care pathway e.g. provide information/advice

to patients and/or giving appropriate instructions with regards to medication etc.

If the outcome of this triage is unsatisfactory (i.e. the issue is unresolved or causing concern on clinical grounds) a local response procedure will be invoked. The Clinical Triage professional will escalate rapidly if clinical concerns indicate that this is necessary.

Depending on the outcome of the Clinical Triage the following response may be required:

- Local response
- Urgent response
- Emergency response

11 Response from Clinical Triage

11.1 Local Response

Local response may differ depending on the clinical conditions, types of patients on RTNI Managed Service, their severity and complexity and the infrastructure designed to support RTNI Managed Service at a local level; during working and out of hours.

The local response is initiated upon the receipt of patient details by the delegated healthcare professional for local response. This can be realised through a range of potential routes, including telephone, email, or text message. It is desirable that the notification be graded to reflect its seriousness (e.g. minor or major alarms).

It is highly desirable for local response staff to be able to access the patient data on the system to aid prompt decision-making.

The local response may have a series of escalating steps depending on the agreed pathway, which may include a 2nd line clinical triage which is based on the judgement of the delegated healthcare professional for local response (during working hours or out of hours).

Escalating Steps

1. **Information passed to the community healthcare professional for action.** This action may be to either:
 - a) Note the info and take no further immediate action
 - b) Contact the patient or carer by phone
 - c) Arrange further assessment, e.g. blood sampling
 - d) Visit the patient

- e) Inform another professional to request them to consider taking action.
- 2. **Information passed to the GP or other responsible clinician** for action.
- 3. **Arranging emergency response** up to and including “999” ambulance.

11.2 Urgent Response

Some necessary responses will fall into the ‘urgent’ category rather than ‘emergency’. The patient specific pathway should define as far as possible, the desirable response in such circumstances, although the health professional dealing with the response or the clinician with responsibility will have some discretion as to how to act.

11.3 Emergency Response

Should the situation become serious the emergency response procedure is initiated. This decision will depend to some degree on a number of factors including:

- The parameter/s causing the alarm
- The patient specific pathway;
- The prior knowledge of/and trend pathways of the individual patient;
- The knowledge of the RTNI Managed Service Triage Nurse and their capability of assessing the situation at the point in time in which the alarm is raised; and
- The presence or absence of a carer with the patient who is capable of assisting in the situation.

The elements of the response may include:

1. Emergency ‘999’ ambulance for catastrophic collapse, or chest pain suspicious of acute coronary syndrome, or profound change in a clinical parameter, not due to technical issues;
2. Urgent dispatch of health care professional to further assess the patient’s condition.

11.4 Governance – Recording of information

It is expected that the RTNI Managed Service will comply with DHSS&PS Standards of Governance. In terms of the RTNI Managed Service process, areas of governance with particular relevance are as follows:

Recording Information

All actions taken by the RTNI Managed Service team should be recorded; as well as all actions that are to be taken by the local response. This will ensure that all relevant information is available for audit as well as to provide evidence for evaluation purposes in the future.

Any clinical triage decisions, whether 1st or 2nd line, must be recorded and notified to the responsible clinician and GP (if the GP is not the clinician with responsibility for the patient) as per best practice. The time elapsed between decisions and notification will depend on the degree of urgency of the action taken. Thus an emergency ambulance should evoke an immediate contact, whilst a simple transfer of information to the carer might be retained for a routine report. In all cases, the wishes of the clinician with responsibility, and the clinical condition of the patient should be taken into account in determining the frequency of reports.

All actions taken at any level of the triage process must be recorded by the person initiating that action. Outcomes should also be recorded and the local response professional should advise the RTNI Managed Service Centre of the outcomes as appropriate. Where an emergency 999 call has been made the RTNI Managed Service Triage Nurse will record this action. The method for recording actions should not be time-consuming.

Dealing with Complaints/Incidents and Near Misses

A policy for dealing with patient complaints will be required which meets the DHSS&PS standard and should include the process for investigation, the level of response to the person making complaint, including a standard for response times, and the method of reporting complaints and outcomes.

A system for recording and reporting Incidents/Near Misses will be required which meets the standard required by RQIA.

12 Patient Education/Self Management

All patients entering RTNI Managed Service program will have an educational program tailored to meet their needs and the needs of their carers. This program will include making information and advice

available to the patient relevant to their clinical condition, the optimum management and the management of any potential exacerbations. Telephone advice from health professionals at the RTNI Managed Service Centre will be required to support patients' understanding. Patients should be educated to recognise symptoms that have triggered clinical alerts and be educated on how to manage minor deteriorations in their condition as early as possible – and so decrease their chances of having major episodes resulting in medical intervention/hospital admission. Commentary on track-and-trend reports should be provided in a user-friendly format.

In collaboration with the Local Response Team, the patient will have written support information as well as be supported through patient support groups and voluntary organisations. The patient and their carers should be involved in deciding the educational program appropriate for them.

When patient results are within the parameters over a given period of time (as determined in the pathway), the RTNI Managed Service Centre should contact the patient by phone to provide reassurance.

13 Reports

All information on the patients Telemonitoring will be saved by the RTNI Managed Service Centre from the time that the patient commences Telemonitoring.

The following types of reports could be sent:

- Track and Trend Report
 - To GPs, delegated healthcare professional, clinicians for outpatient appointments, etc
- Progress Report
 - To patient and carer
- Management Reports
 - Numbers of escalations/intervention/outcome info
 - Reasons for maintaining parameters
 - Percentage alerting, alerts & actions
 - Hospital admissions prevented; outcomes v baseline
- Aggregated information for commissioners.

The frequency of reports will largely depend on the types of reports and the availability of patient information on the data warehouse. The latter will make it possible for trust information staff to access and interrogate the data either on an ad-hoc or on a more regular basis.

14 Review Process

In patients where it is obvious that a longer-term period of monitoring will be required, the review process should be carried out before the end of the initial 3-month period. This will ensure that the necessary requirements for patient selection continue to be present, and will allow the patient, their family or carer and the relevant clinicians to revalidate the decision to continue RTNI Managed Service. In all cases a management plan for each individual should be in place and agreed by the relevant healthcare professionals. In situations where long-term monitoring of patients (more than 1 year) is envisaged, there should be regular reviews at appropriate intervals

The designated Trust RTNI Managed Service co-ordinator will also be responsible for ensuring that the parameters to be measured are agreed, any tolerance variations are agreed and reviewed as required, responses to alarms are agreed with the responsible clinician, report frequency agreed and arrangements for responding to a triage outcome agreed and implemented.

In cases where the patient has co-morbidities, the decision to review and amend parameters will require involvement of the various specialist clinicians.

The review should take into consideration:

- i. Patient compliance and ability to use equipment;
- ii. The patient's views on the effectiveness of the service;
- iii. All relevant clinical information should be included within the review.

Once again, it is desirable for changes to be effected in a prompt and safe manner. All professionals involved in the patient's pathway and the patient/carer should be involved in the review process, including the triage nurse. Ultimate decision-making will reside with the person with clinical responsibility.

The outcome of the review process may be one of the following:

- Retention on the RTNI Managed Service program
- Step down process

Where appropriate to the needs of the patient, a phased step down plan should be implemented.

This may involve continuing on the RTNI Managed Service program but on a reduced basis e.g. measuring of vital signs

and monitoring by RTNI Managed Service Team on a once-a-week basis.

This step down process will be reviewed after a 3-month period.

- Discharge process

15 Discharge Process

Once the patient is discharged from RTNI Managed Service program, there will be a handover process to the responsible healthcare professional for further management; e.g. patient health education and self-management.

Other information provided in the handover process should include:

- i. The number of alarms raised;
- ii. General condition of patient; and
- iii. Any change in needs or medication, frequency of alerts and track and trend reports as appropriate

The discharged patient will be handed over to the appropriate healthcare professional/case manager/GP. The discharge letter will be succinct and summarised. A formal process will be put in place regarding the death of patients, who are receiving Telemonitoring.

A discharge letter should be issued to all professionals involved in the care of the patient; outlining clinical condition, changes in medication and outcomes as well as “significant events”.

16 Audit & Evaluation

Best practice demands that the implementation of the RTNI Managed Service is subject to comprehensive and robust independent evaluation. This is necessary to determine the clinical and operational effectiveness of the Managed Service including the value for money that it offers. The conduct of such a study and its publication will also contribute to international knowledge and understanding of the benefits of the scale application of such a service.

The intention is to develop an evaluation framework with the Department and commission an independent assessment of the Managed Service as it is rolled out. Interim reports are expected to be provided so that learning is available as the Managed Service is being implemented

All aspects of the service will be audited and subject to an evaluation procedure to determine clinical safety, effectiveness, efficiency and economic benefit.

A system for assessing patient satisfaction at regular intervals will be required, including individual feedback to a patient regarding a complaint or suggestion relating to service delivery.

The details of the evaluation procedure will be determined by the procurement advisor and the evaluation team.