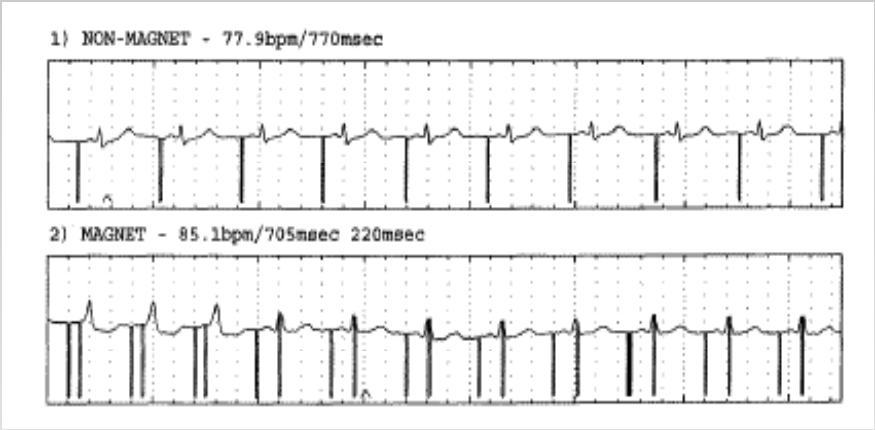
MEDTRONIC CARELINK® NETWORK FOR PACEMAKERS

Comparison between the Medtronic CareLink Network for Pacemakers and Transtelephonic Monitoring

Transtelephonic Monitoring Transmission

What can you determine with a TTM transmisson?

Is the pacemaker functioning appropriately?



Is battery longevity OK?

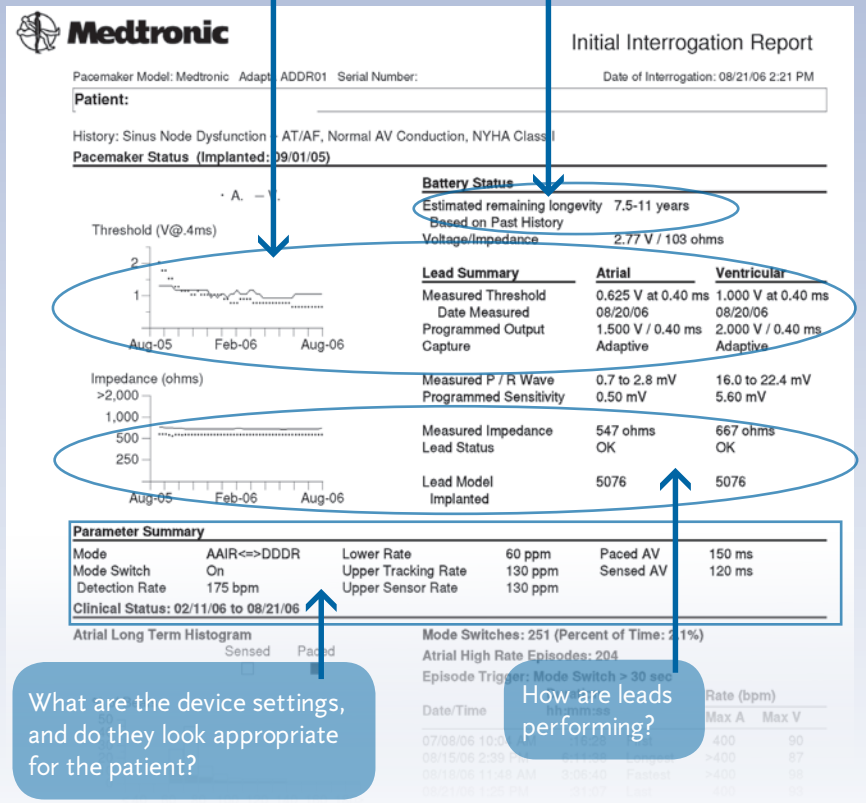
Observation: The heart rate is resulting from atrial pacing with intact AV conduction. Therefore, the device is pacing effectively.

Medtronic CareLink® Network for Pacemakers

What can you determine with a Medtronic CareLink transmission by assessing the more than 25 reports available for Adapta™ pacemakers?

Have the pacing thresholds changed?

Is battery longevity OK?

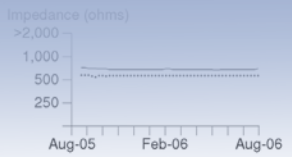


What are the device settings, and do they look appropriate for the patient?

How are leads performing?

See additional reports

Initial Interrogation Report



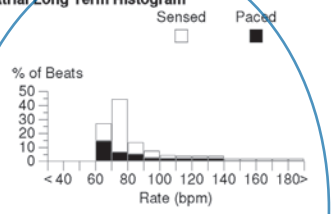
Measured P / R Wave	0.7 to 2.8 mV	16.0 to 22.4 mV
Programmed Sensitivity	0.50 mV	5.60 mV
Measured Impedance	547 ohms	667 ohms
Lead Status	OK	OK
Lead Model Implanted	5076	5076

Parameter Summary

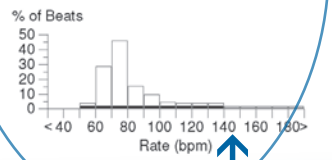
Mode	AAIR<=>DDDR	Lower Rate	60 ppm	Paced AV	150 ms
Mode Switch	On	Upper Tracking Rate	130 ppm	Sensed AV	120 ms
Detection Rate	175 bpm	Upper Sensor Rate	130 ppm		

Clinical Status: 02/11/06 to 08/21/06

Atrial Long Term Histogram



Ventricular Long Term Histogram



Mode Switches: 251 (Percent of Time: 2.1%)

Atrial High Rate Episodes: 204

Episode Trigger: Mode Switch > 30 sec

Date/Time	Duration hh:mm:ss		Rate (bpm) Max A	Max V
07/08/06 10:04 AM	:16:28	First	400	90
08/15/06 2:39 PM	6:11:38	Longest	>400	87
08/18/06 11:48 AM	3:06:40	Fastest	>400	98
08/21/06 1:25 PM	:31:07	Last	400	93

Ventricular High Rate Episodes: 1

08/15/06 5:32 PM	:11	Longest...	87	265

Pacing (% of total):

AS - VS	72.1%
AS - VP	2.3%
AP - VS	24.7%
AP - VP	0.8%
MVP	On

Event Counters

PVC singles	2,745
PVC runs	92
PAC runs	0

Has the patient had episodes?

Have you minimized unnecessary right ventricular pacing?

Does the patient's heart rate reflect adequate rate response?

Initial Interrogation Report

Is it time to assess the need for anti-coagulation therapy?

Medtronic Initial Interrogation Report

Pacemaker Model: Medtronic Adapta ADDR01 Serial Number: Date of Interrogation: 08/21/06 2:21 PM

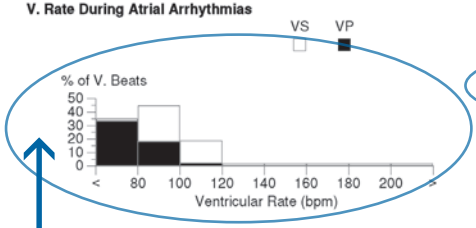
Patient:

Arrhythmia Summary: 02/11/06 to 08/21/06

Mode Switch Count	251 (0.5 hrs/day - 2.1%)	VHR Episodes	1
AHR Episode Trigger	Mode Switch > 30 sec	VHR Detection	180 ppm for 5 beats
AHR Episodes	204	VHR Termination	180 ppm for 5 beats
AHR Detection	175 bpm - No Delay	SVT Filter	On

Type		Date/Time	Duration hh:mm:ss	Rates (bpm): Max A	Max V	Avg V	Sensor	EGM
VHR	Longest...	08/15/06 5:32 PM	:11	87	265	180	60	Yes
AHR	First	07/08/06 10:04 AM	:16:28	400	90	87	77	No
AHR	Longest	08/15/06 2:39 PM	6:11:38	>400	87	83	80	No
AHR	Fastest	08/18/06 11:48 AM	3:06:40	>400	98	88	64	No
AHR		08/21/06 3:26 AM	:11:42	380	83	82	60	Yes
AHR		08/21/06 7:18 AM	2:36:51	>400	84	81	84	Yes
AHR	Last	08/21/06 1:25 PM	:31:07	400	93	85	81	Yes

V. Rate During Atrial Arrhythmias



Atrial Arrhythmias

Duration	Count
= >72hr	0
24hr - <72hr	0
12hr - <24hr	0
4hr - <12hr	3
1hr - < 4hr	55
10min - < 1hr	84
1min - <10min	71
< 1min	38
	251

Cardiac Compass: 02/27/06 to 08/21/06

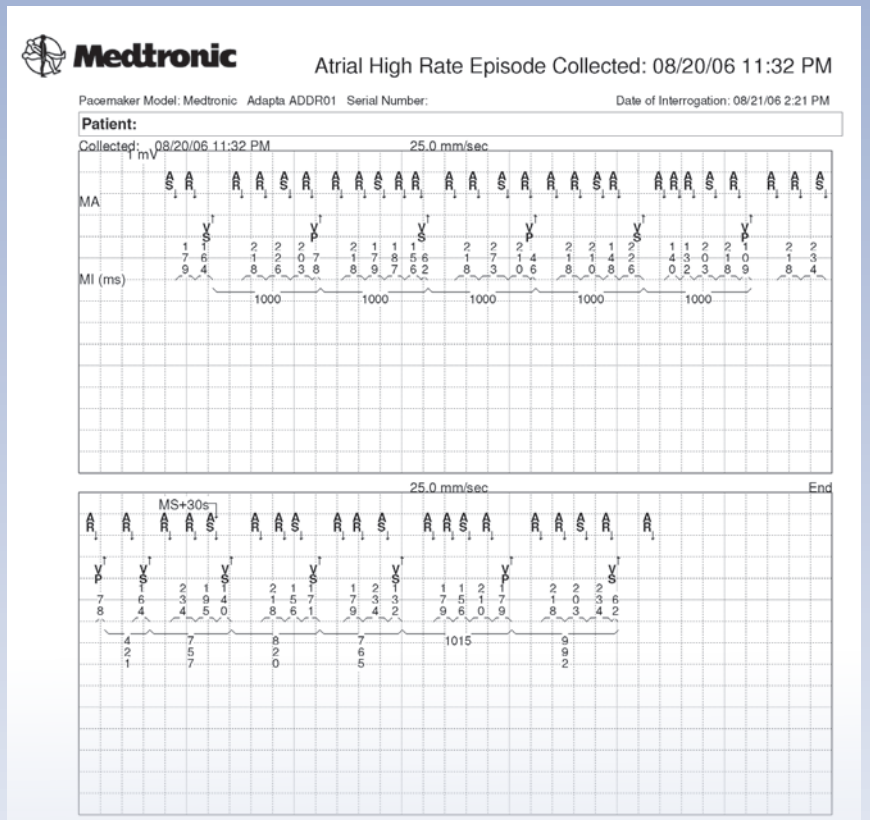
Atrial Arrhythmia Trend: 10 days with > 4 hours AT/AF

How many episodes are considered long?

What is the efficacy of the current medication regimen in reducing atrial arrhythmias and/or preventing symptomatic ventricular rates?

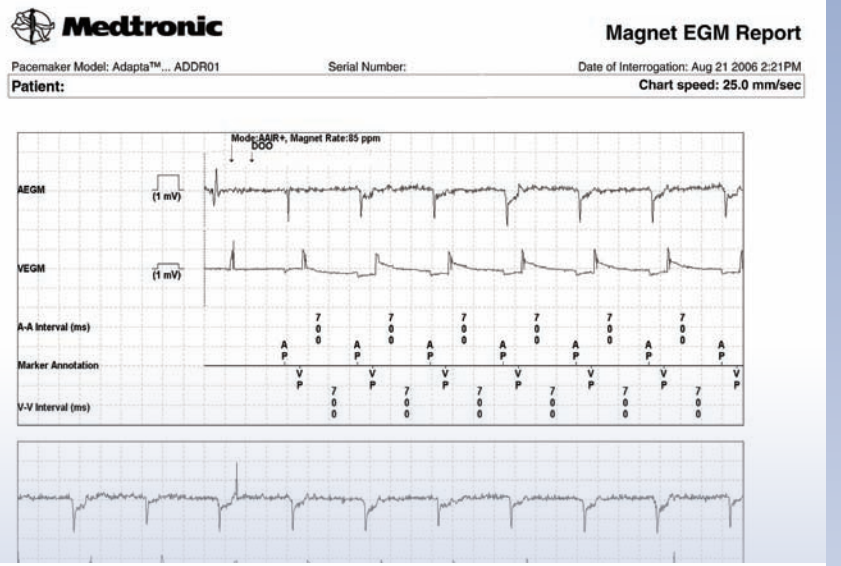
Atrial High Rate Episode Collected

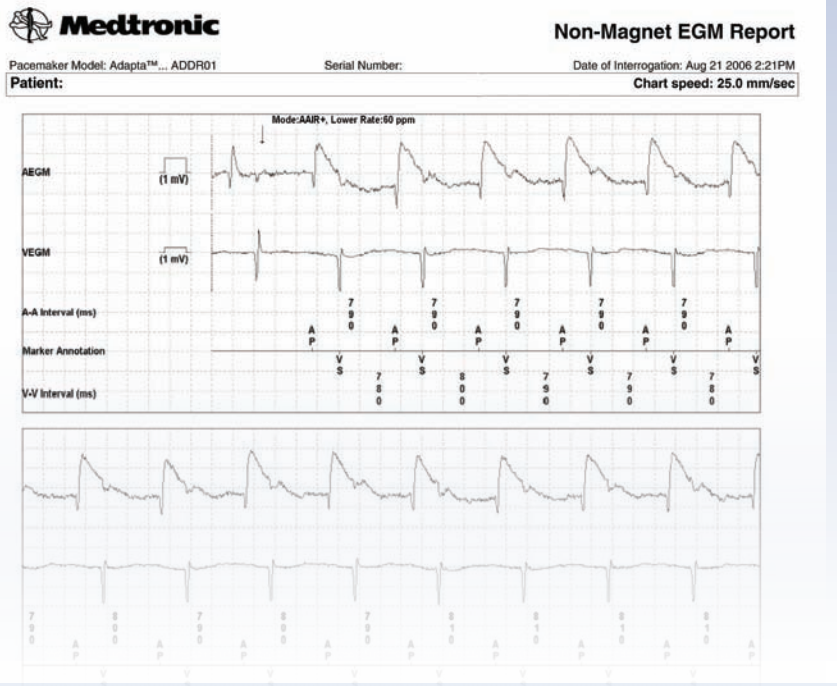
Is the device seeing an arrhythmia properly?



Is the atrium being conducted to the ventricle? Assess the efficacy of rate control medications or the need for additional intervention.

24-Second Presenting Rhythm





Provide Optimal Care for Your Pacing Patients

Do TTM reports tell you everything you need to know to help you provide optimal patient care to your pacemaker patients? You can now capture comprehensive device data remotely – data comparable to a programmer device check – to provide this care.

Compare TTM data and features to the Medtronic CareLink® Network.

Medtronic CareLink® Network Features	Transtelephonic Monitoring (TTM) Features
Comprehensive Device Data Provides access to patient and device diagnostics as if the patient were in the office, allowing physicians to diagnose and treat in a timely and efficient manner (i.e., drug and anticoagulation therapies).[1] The Medtronic CareLink Network provides reports comparable to the programmer; for example, more than 25 reports are available for Adapta™, Versa™, Sensia™, and EnPulse® pacemakers. *Provides full interrogation capabilities, comparable to an in-office device check:* ☑ Episode reports showing events of atrial tachycardia, atrial fibrillation, and ventricular arrhythmias to ensure device is functioning properly through stored electrograms (EGM) and counter data ☑ Battery voltage and longevity ☑ Lead impedance and trends ☑ Full parameter summary ☑ Percent pacing ☑ Real-time and magnet EGM ☑ A-V conduction histograms ☑ Arrhythmia summary with Mode Switch duration	**What About TTM?** Allows assessment of pacemaker status and parameter summary. Enables physicians to assess proper device function. *Provides the following:* ☑ Heart rhythms at a single point in time ☑ Device magnet response with magnet rate
Patient Convenience and Ease of Use Provides more convenience for patients. Transmissions may be sent at a time convenient to the patient and from anywhere in the United States.[2] The Medtronic CareLink Monitor is easy to use with one-button operation.[3]	**What About TTM?** TTM requires the patient to set an appointment to transmit, which may result in scheduling changes and conflicts. Sending a TTM transmission can be difficult for some patients, requiring proper placement of the wrist electrodes, magnet, and the phone receiver.
Clinic Resources No nurse or technician involvement is needed during a Medtronic CareLink Network transmission. The follow-up nurse can batch process several Medtronic CareLink transmissions in one sitting or can review transmissions as time permits between patient visits. No additional office space required to manage Medtronic CareLink Network patients.	**What About TTM?** A nurse or technician must be on the call with the patient to receive the TTM transmission. Practices that operate an in-clinic TTM service often need additional space and staff to manage it.

Brief Statement
Pacemakers
Indications for Adapta™, Versa™, and Sensia™: Adapta, Versa, and Sensia pacemakers are indicated for rate adaptive pacing in patients who may benefit from increased pacing rates concurrent with increases in activity. Dual chamber pacemakers are also indicated for dual chamber and atrial tracking modes in patients who may benefit from maintenance of AV synchrony. **Contraindications:** Adapta, Versa, and Sensia pacemakers are contraindicated for dual chamber atrial pacing in patients with chronic refractory atrial tachyarrhythmias, asynchronous pacing in the presence (or likelihood) of competitive pacing and intrinsic rhythms, or unipolar pacing in patients with an implanted cardioverter defibrillator. **Warnings/Precautions:** Changes in a patient's disease and/or medications may alter the efficacy of the device's programmed parameters. Patients should avoid sources of magnetic and electromagnetic radiation to avoid possible underdetection, inappropriate sensing and/or therapy delivery, tissue damage, induction of an arrhythmia, device electrical reset, or device damage. Do not place transthoracic defibrillation paddles directly over the device. **Potential Complications:** Potential complications include, but are not limited to, rejection phenomena, erosion through the skin, muscle or nerve stimulation, oversensing, failure to detect and/or terminate arrhythmia episodes, and surgical complications such as hematoma, infection, inflammation, and thrombosis.

Model 2090 Medtronic CareLink® Programmer
The Medtronic CareLink Programmer is a portable, microprocessor-based instrument used to program Medtronic implantable devices.

Model 2490 Medtronic CareLink® Monitor
Intended Use: The Medtronic CareLink Monitor and the Medtronic CareLink Network are indicated for use in the transfer of patient data from some Medtronic implantable cardiac devices based on physician instructions and as described in the product manual. These products are not a substitute for appropriate medical attention in the event of an emergency and should only be used as directed by a physician. **Warnings and Precautions:** Do not use a cellular phone while the antenna is positioned over the implanted device. The Medtronic CareLink Network is currently available in the continental United States, Alaska, and Hawaii.

Medtronic EnPulse®
Indications for EnPulse: EnPulse is indicated for rate adaptive pacing in patients who may benefit from increased pacing rates concurrent with increases in activity. EnPulse pacemakers are also indicated for dual chamber and atrial tracking modes in patients who may benefit from maintenance of AV synchrony. Dual chamber modes are specifically indicated for treatment of conduction disorders that require restoration of both rate and AV synchrony, which include various degrees of AV block to maintain the atrial contribution to cardiac output and VVI intolerance (e.g., pacemaker syndrome) in the presence of persistent sinus rhythm. **Contraindications:** EnPulse is contraindicated for dual chamber atrial pacing in patients with chronic refractory atrial tachyarrhythmias, asynchronous pacing in the presence (or likelihood) of competitive pacing and intrinsic rhythms, unipolar pacing in patients with an implanted cardioverter defibrillator. **Warnings/Precautions:** Changes in a patient's disease and/or medications may alter the efficacy of the device's programmed parameters. Patients should avoid sources of magnetic and electromagnetic radiation to avoid possible underdetection, inappropriate sensing and/or therapy delivery, tissue damage, induction of an arrhythmia, device electrical reset, or device damage. Do not place transthoracic defibrillation paddles directly over the device. **Potential Complications:** Potential complications include, but are not limited to, rejection phenomena, erosion through the skin, muscle or nerve stimulation, oversensing, failure to detect and/or terminate arrhythmia episodes, and surgical complications such as hematoma, infection, inflammation, and thrombosis.

See device manuals for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential complications/adverse events. For further information, please call Medtronic at 1 (800) 328-2518 and/or consult Medtronic's website at www.medtronic.com.

Caution: Federal law (USA) restricts these devices to sale by or on the order of a physician.

[1] Serwer GA, Fischbach PS, Stephens GM, et al. Initial experience with an enhanced transtelephonic pacemaker follow-up system in patients with structural cardiac disease. *Heart Rhythm*. May 2006;3(5)(suppl 1):S174.
[2] Schoenfeld MH, Compton SJ, Mead RH, et al. Remote monitoring of implantable cardioverter defibrillators: a prospective analysis. *PACE*. June 2004;27(6 Pt 1):757-763.
[3] Medtronic Patient Market Research survey, 2003.

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Alleviating Pain · Restoring Health · Extending Life