# EMR for Rheumatology

Dr S B Gogia, Prof A N Malaviya

Rheum - Aid
Bills DAS Tables
History
Easy to Search
Examination
Stepwise tutorials by Prof. Malaviya
E-PATIENT RECORD
Prescription
ICD Coding
Rheumatoid, SLE
Anks-Pond

## Summary

*Record keeping is essential for not only research but also good clinical care. But it is tedious, repetitive and boring hard work. We have managed to remove the sheer drudgery of the same through a specialized Electronic Medical Record (EMR) software for Rheumatology patients. It has lead to work efficiency, better patient care as well as faster turnover time in our personal as well as hospital based clinics. In addition the data entered has resulted in better documentation of our processes and allowed faster analysis for research and publication purposes.*

*We believe that EMRs should be routine in all Rheumatological clinics. However good EMRs like ours require a deep personal involvement of the clinician so that it matches current workflow ethics.*

## Introduction

*transition phase from a manual to a digital world*

The benefits of Electronic Medical Records have been extrapolated by many clinical studies. However many factors like unfamiliarity of IT processes, learning curve, have inhibited EMRs to become routine in most clinical environments.

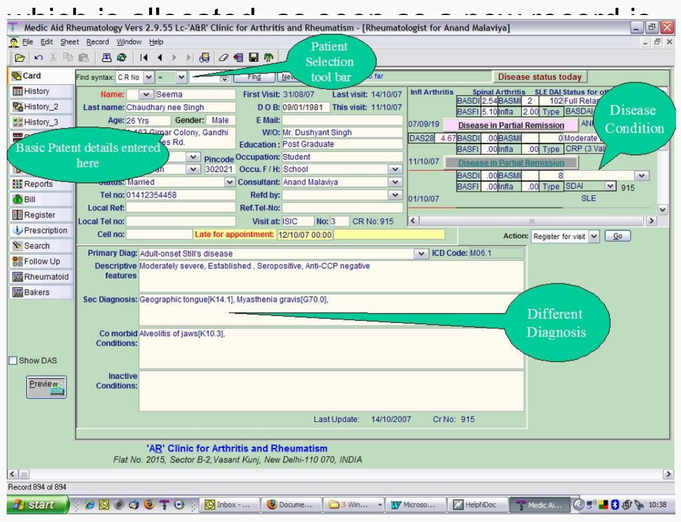
This is linked to various factors like

- Applications are not user friendly
- They do not follow existing workflow patterns
- They do not provide a complete solution
- There is a steep learning curve

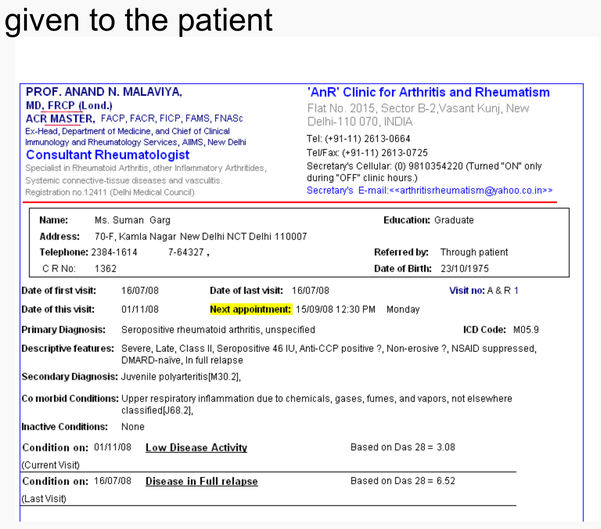
A unique combination of a Rheumatologist (Dr Malaviya) along with an IT savvy clinician (Dr Gogia), have made software which overcomes the above problems by incorporating a simple principle called Change Management which is well known in IT parlance along with another well known rule – *The best software is made by the users.*

## Current Status at first glance

Opening the first sheet of the patient will automatically reveal all features. Most entries are automatically updated as one fills in the details like DAS /SLE DAI scores etc. Identifying this record is through at an extremely easy search. A computer generated number is used to identify the patient which is allocated as soon as a new record is




And then the same can be printed in one click and given to the patient



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**Consultant Rheumatologist**
Specialist in Rheumatoid Arthritis, other Inflammatory Arthritides, Systemic connective-tissue diseases and vasculitis.
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**Name:** Ms. Suman Garg — **Education:** Graduate
**Address:** 70-F, Kamla Nagar New Delhi NCT Delhi 110007
**Telephone:** 2384-1614 7-64327 , — **Referred by:** Through patient
C R No: 1362 — **Date of Birth:** 23/10/1975

**Date of first visit:** 16/07/08 — **Date of last visit:** 16/07/08 — **Visit no:** A & R 1
**Date of this visit:** 01/11/08 — **Next appointment:** 15/09/08 12:30 PM Monday
**Primary Diagnosis:** Seropositive rheumatoid arthritis, unspecified — **ICD Code:** M05.9
**Descriptive features:** Severe, Late, Class II, Seropositive 46 IU, Anti-CCP positive ?, Non-erosive ?, NSAID suppressed, DMARD-naive, In full relapse
**Secondary Diagnosis:** Juvenile polyarteritis[M30.2],
**Co morbid Conditions:** Upper respiratory inflammation due to chemicals, gases, fumes, and vapors, not elsewhere classified[J68.2],
**Inactive Conditions:** None
**Condition on:** 01/11/08 **Low Disease Activity** Based on Das 28 = 3.08 (Current Visit)
**Condition on:** 16/07/08 **Disease in Full relapse** Based on Das 28 = 6.52 (Last Visit)

## About IT usage in our Joint Diseases Clinic

The Joint Diseases Clinic at Indian Spinal Injuries Centre started in 2000. It runs on Fridays with an appointment list of approx 60 patients. From the very onset, we have been very meticulous in storing the entire set of patient information. MS Word® template was used with a smaller copy of the same containing the prescription plus few other relevant details being handed over to the patient. Disease index scoring was done through DAS28, DAS44, SLE DAI and other established scoring methods using inbuilt table(s) in the same.

While this worked elegantly, it had the following lacunae:-

- Time taken was inordinately long for each record (90 minutes for new pt, 20 -30 minutes for revisits)
- Later search for a particular patient was difficult
- Statistics generation on a group wise basis was (Filemaker Pro) meaning extra effort. Still, research output was limited to planned fields.

## The current solution

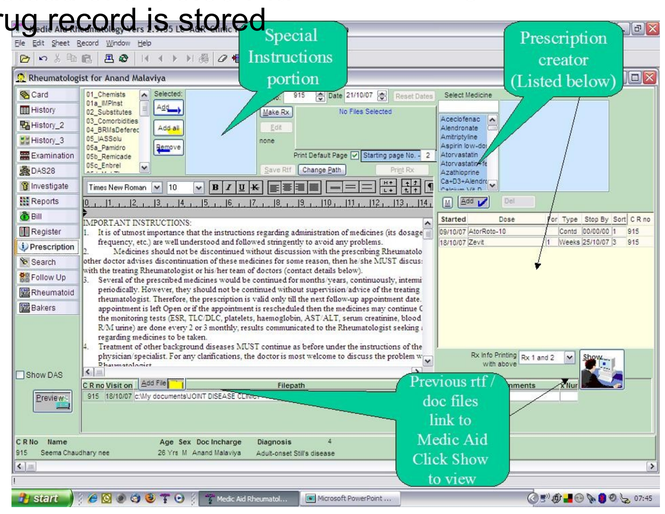
The solution called Rheum Aid is based on templates of another software called Medic Aid. It runs on a client server environment where the operating console – called the front end runs on any Windows based PC while the backend is an RDBMS or which can be in the local computer (for the single user version) or a proper Windows or Linux server linked to the many computers on a LAN (for the more expensive Multi User version) or a WAN. Entries are done once only and output available forever.

Searches are extremely elegant based on a wide range of criteria and can be narrowed for getting details of an individual patient or used broadly for research purposes.

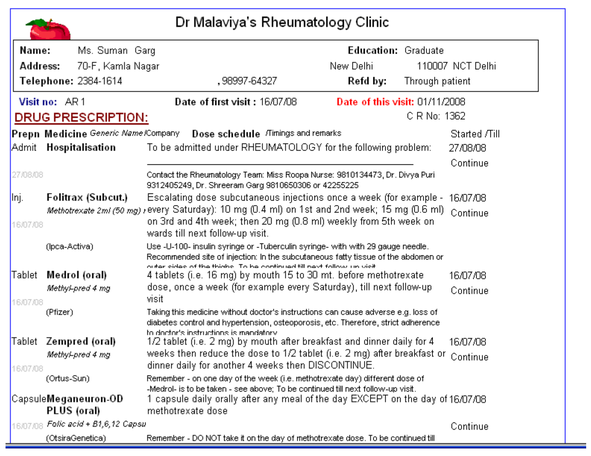
Each new patient record ready in 20 minutes, revisit in < 3 min.

## A faster Prescription

Patients prescription is in two formats – A standalone A complete IT savvy is generated and specific protocol of who does what and sits where. Our continuous entry of the drugs which is done through a nick name – this has details of when to start Friday clinic now completes it work by 3 – 3.30 PM (automatically current), for how long etc. The lifetime instead of 3 – 5.30 PM drug record is stored.




However the prescription is far more detailed – carrying further information from a master which tells what does this nickname expand to



Dr Malaviya's Rheumatology Clinic

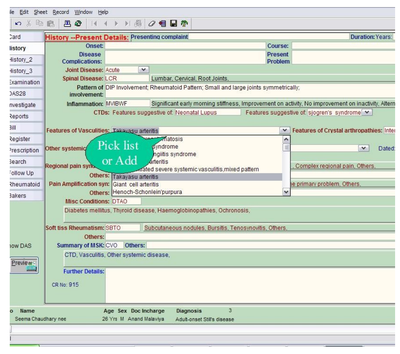
**Name:** Ms. Suman Garg — **Education:** Graduate
**Address:** 70-F, Kamla Nagar New Delhi 110007 NCT Delhi
**Telephone:** 2384-1614 , 98997-64327 — **Refd by:** Through patient
**Visit no:** AR 1 — **Date of first visit :** 16/07/08 — **Date of this visit:** 01/11/2008 — C R No: 1362

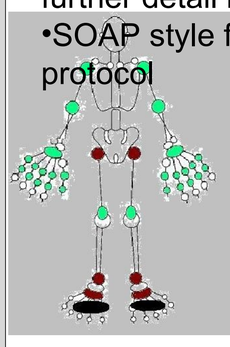
**DRUG PRESCRIPTION:**

| Prepn | Medicine *Generic Name* /Company | Dose schedule /Timings and remarks | Started /Till |
|---|---|---|---|
| Admit | **Hospitalisation** | To be admitted under RHEUMATOLOGY for the following problem: | 27/08/08 Continue |
| 27/08/08 | | Contact the Rheumatology Team: Miss Roopa Nurse: 9810134473, Dr. Divya Puri 9312495249, Dr. Shreeram Garg 9810650306 or 42255225 | |
| Inj. | **Folitrax (Subcut.)** *Methotrexate 2ml (50 mg)* (Ipca-Activa) | Escalating dose subcutaneous injections once a week (for example - every Saturday): 10 mg (0.4 ml) on 1st and 2nd week; 15 mg (0.6 ml) on 3rd and 4th week; then 20 mg (0.8 ml) weekly from 5th week on wards till next follow-up visit. Use -U-100- insulin syringe or -Tuberculin syringe- with with 29 gauge needle. Recommended site of injection: In the subcutaneous fatty tissue of the abdomen or | 16/07/08 Continue |
| 16/07/08 | | | |
| Tablet | **Medrol (oral)** *Methyl-pred 4 mg* (Pfizer) | 4 tablets (i.e. 16 mg) by mouth 15 to 30 mnt. before methotrexate dose, once a week (for example every Saturday), till next follow-up visit Taking this medicine without doctor's instructions can cause adverse e.g. loss of diabetes control and hypertension, osteoporosis, etc. Therefore, strict adherence | 16/07/08 Continue |
| 16/07/08 | | | |
| Tablet | **Zempred (oral)** *Methyl-pred 4 mg* (Ortus-Sun) | 1/2 tablet (i. e. 2 mg) by mouth after breakfast and dinner daily for 4 weeks then reduce the dose to 1/2 tablet (i.e. 2 mg) after breakfast or dinner daily for another 4 weeks then DISCONTINUE. Remember - on one day of the week (i.e. methotrexate day) different dose of -Medrol- is to be taken - see above; To be continued till next follow-up visit. | 16/07/08 Continue |
| 16/07/08 | | | |
| Capsule | **Meganeuron-OD PLUS (oral)** *Folic acid + B1,6,12 Capsu* (OtsiraGenetica) | 1 capsule daily orally after any meal of the day EXCEPT on the day of methotrexate dose Remember - DO NOT take it on the day of methotrexate dose. To be continued till | 16/07/08 Continue |
| 16/07/08 | | | |

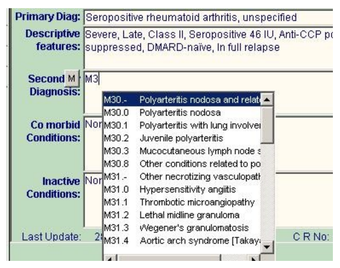
## Other features

- Make masters once and these will be used to automatically populate typed out text in the relevant column
- Complete Detailed History sheet – with automated opening of further detail boxes
- SOAP style follow up protocol



- Visual DAS scoring using a homunculus




- ICD 10 coding is inbuilt

## Glossary of Terms

| | |
|---|---|
| **EMR** | Electronic Medical Record – Pt care data stored electronically |
| **RDBMS** | Relational DataBase Management System |
| **PC** | Personal Computer |
| **IT** | Information Technology |
| **DAS** | Disease Activity Scoring |
| **SLE DAI** | SLE Disease Activity Index |
| **LAN /WAN** | Local Area and Wide Area Network |
| **ICD** | International Coding for Disease – A WHO classification for disease |
| **SOAP** | Subjective, Objective, Assessment, Planning |
| **ISIC** | Indian Spinal Injuries Centre, Vasant kunj, New Delhi – Our hospital |

## In Conclusion

We are using a simple and easy to use customized software for rheumatology which makes record keeping a pleasure, leads to better patient care as well as have ready material for writing research papers. Since the same follows standards of care followed in Rheumatological practice, we believe such solutions should be widely used.

## About the Authors

**Prof Anand Malaviya** is a renowned Rheumatologist from AIIMS, New Delhi. He is a pioneer in use of IT in Rheumatological Practise. He is currently using the software in his two clinics in New Delhi – A& R Rheumatology Clinic in vasant Kunj as well as the Joint Diseases Clinic at Indian Spinal Injuries Centre also at Vasant Kunj.

**Dr S B Gogia** is a plastic surgeon specializing in Hand Surgery. He has done pioneering work in Incorporating IT in Healthcare and is currently the elected president of Indian Association for Medical Informatics – India's biggest forum of IT in Healthcare

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*We welcome you to keep a mini - copy of this poster for reference. The software is on display in the* ***Wyeth Stall***