Altnagelvin Hospitals Health & Social Services Trust

No. 3.2
No. 4.2.
No. 5.2.

6 July 2005

Dr T McMurray
Postgraduate Dean
N. I. Medical & Dental Training Agency
5 Annadale Ave
BELFAST BT7 3JH

Dear Dr McMurray

CC Dr F O'Connor ✓

RE: Inquiry into Hyponatraemia Death

Thank you for your request for information regarding evidence about training in the areas of fluid management and in particular hyponatraemia and record keeping in Altnagelvin Hospital.

As you are aware I have been Postgraduate Tutor since April 2004. Unfortunately the previous Postgraduate Tutor, Mr Paul Neely died, and I have discussed this with the tutor prior to that, Dr Philip Gardiner. I have also discussed these issues with Mr Robert Gilliland, regarding for surgical training issues, various doctors who taught on IV fluids and electrolytes and have myself inputted regarding general paediatric training as I was paediatric tutor during that time period.

Whole Hospital Training

From 1995 there have been teaching sessions timetabled each year on fluid balance and electrolyte disturbance within the medical division teaching and training programme. This formal training is delivered during the lunchtime teaching programme and aimed at all PRHO's and all other junior medical staff. This is considered a general hospital education opportunity.

The lectures on fluid balance was given by an anaesthetist and the lecture on abnormal biochemical tests including electrolyte disturbance by our clinical biochemist (ref 1)

Both these lectures would have been very much aimed at adult care.

IN 2002 following our own case of hyponatraemia and cerebral oedema Dr Geoff Nesbitt prepared a talk specifically on this topic and has presented this widely as per his own response to the enquiry (ref 2).

The current junior doctors handbook has a general section on case note recording as well as specific advice on accurate and safe prescribing of drugs and fluids. It specifically mentions default solutions in paediatrics and as importantly the need to seek senior advice if unsure (ref 3).

Medical Paediatric Training

Prior to the late 90's a specific session was allocated to fluids and electrolytes as part of a rolling training package. In the late 90's we introduced a 1-day mini-emergency-paediatric-life-support course for all SHOs and non-APLS trained middle grade. This incorporated a lecture on fluids and electrolyte disturbances and their management based on the then-current APLS guidelines. This is the current training in paediatrics (ref 4).

This was supplemented by the addition of posters detailing our default fluid regime in terms of use of 0.5NSaline/2.5%dextrose solution in 2001 and the formal adoption of regional guidelines in 2002 when they were circularised. To date these guidelines are widely displayed within the unit.

Surgical Directorate Training:

All PRHO's within surgery would have been expected to attend the specific training sessions aforementioned within the whole hospital teaching programme.

In 2002 Dr Nesbitt presented his formal teaching to the senior surgical team and juniors.

Fluids are discussed at departmental induction.

A fluid prescription chart has been agreed with Anaesthetics and Surgical teams, along with guidance on electrolyte monitoring.

I hope this is useful and meets the enquiries requirements. I am aware that other replies from Altnagelvin Trust expand some of these issues in some detail.

Yours sincerely

N P Corrigan MB BCH BAO DCH FRCPCH
Consultant Paediatrician

sr

Altnagelvin Area Hospital, Glenshane Road, Londonderry BT47 6SB
Telephone (028) 7134 5171 Fax (028) 7161 1222

Ref. 1

Ref 1

uesday, 4th Oct.,'94, at 9.30 a.m.	SURGICAL AUDIT MEETING
uesday, 4th Oct.,'94, at I.20 p.m.	AUTOPSY REVIEW (Audit and Educational Aspects)
ednesday, 5th Oct.,'94, at I.20 p.m.	"RESUSCITATION OF THE SHOCKED PATIENT"
ednesday, 5th Oct.,'94, at 4.30 p.m.	MEDICAL DIVISION'S AUDIT MEETING Presenter: Dr.R.J.M.Quinn
hursday, 6th Oct.,'94, at I.20 p.m.	CASE NOTE AUDIT by Mr.R.Gilliland
riday, 7th Oct.,'94, at 8.20 a.m.	JOINT CHEST MEDICINE / RADIOLOGY MEETING
uesday, IIth Oct.,'94, at I.20 p.m.	E.N.T. CASE PRESENTATION (Mr.J.Cullen's Dept.)
ednesday, I2th Oct.,'94, at I.20 p.m.	"PULMONARY EMBOLISM" by Dr.J.G.Daly
hursday, I3th Oct.,'94, at I.20 p.m.	JOURNAL CLUB by Dr.A.Carroll/Dr.M.I.Mulholland
uesday, I8th Oct.,'94, at I.20 p.m.	DIABETIC CASE PRESENTATION (Dr.K.Moles' Dept.)
ednesday, I9th Oct.,94, at I.20 p.m.	"ACUTE ABDOMINAL PAIN"
ednesday, I9th Oct.,'94, at 7.30 p.m. (provisional date)	Sponsored Postgraduate Clinical Evening Meeting Topic: E.N.T. Speaker: Mr.J.Cullen
Thursday, 20th Oct,94, at I.20 p.m.	JOURNAL CLUB by Dr.S.Nag/Dr.J.Reid
Friday, 2Ist Oct.,'94, at 8.20 a.m.	JOINT CHEST MEDICINE / RADIOLOGY MEETING
Tuesday, 25th Oct.,'94, at I.20 p.m.	SURGICAL CASE PRESENTATION (Mr.P.G.Bateson's Dept.)
Wednesday, 26th Oct.,'94, at I.20 p.m.	"ACUTE PAIN MANAGEMENT" (Case Orientated)
Thursday, 27th Oct.,'94, at I.20 p.m.	JOURNAL CLUB by Dr.G.Scott/Dr.N.Wallace
Tuesday, Ist Nov.,'94, at 9.30 a.m.	SURGICAL AUDIT MEETING
Tuesday, Ist Nov.,'94, at I.20 p.m.	AUTOPSY REVIEW (Audit and Educational Aspects)
Tuesday, Ist Nov.,'94, at 4.30 p.m.	MEDICAL DIVISION'S AUDIT MEETING - Presenter: Dr.D.A.J.Keegan
Wednesday, 2nd Nov.,'94, at I.20 p.m.	"SEPTICAEMIA"
Thursday, 3rd Nov.,'94, at I.20 p.m.	CASE NOTE AUDIT by Dr.M.J.Gibbons
Friday, 4th Nov.,'94, at 8.20 a.m.	JOINT CHEST MEDICINE / RADIOLOGY MEETING
Tuesday, 8th Nov.,'94, at I.20 p.m.	"MICROBIOLOGY" by Dr.G.M.Glynn
Wednesday, 9th Nov.,'94, at I.20 p.m.	E.C.G. INTERPRETATION
Thursday, I0th Nov.,'94, at I.20 p.m.	JOURNAL CLUB by Dr.M.Rodgers/Dr.L.McDonald
Tuesday, I5th Nov.,'94, at I.20 p.m.	DERMATOLOGY CASE PRESENTATION by Dr.R.A.Fulton
Wednesday, I6th Nov.,'94, at I.20 p.m.	"FLUID BALANCE" (including hyperemesis, pyloric stenosis)
Thursday, I7th Nov.,'94, at I.20 p.m.	JOURNAL CLUB by Mr.R.L.Prabhu/Dr.A.M.McCloskey
Friday, I8th Nov.,'94, at 8.20 a.m.	JOINT CHEST MEDICINE / RADIOLOGY MEETING
Tuesday, 22nd Nov.,'94, at I.20 p.m.	OPHTHALMIC CASE PRESENTATION (Mr.G.N.Kervick's Dept
Wednesday, 23rd Nov.,'94, at I.20 p.m.	"DIABETES - THE COMAS"

1st August, 1995, to 15th December, 1995.

POSTGRADUATE CLINICAL TUTOR: **Dr. P. BRENDAN DEVLIN,** F.R.C.R.

VENUES: **POSTGRADUATE SEMINAR ROOM,** MULTIDISCIPLINARY EDUCATION CENTRE AND **SEMINAR ROOM D,** FLOOR 7, ALTNAGELVIN AREA HOSPITAL, LONDONDERRY, BT47 1SB.

DATE	CONTENT
Tuesday, 1st Aug.,'95 at 9.30 a.m.	INDUCTION COURSE FOR PRE-REGISTRATION HOUSE OFFICERS
Wednesday, 2nd Aug.,'95, at 9.00 a.m.	INDUCTION COURSE FOR NEW CASUALTY OFFICERS
Wednesday, 2nd Aug.,'95, at 12.30 p.m.	CARDIOLOGY PROTOCOLS
Thursday, 3rd Aug.,'95, at 1.30 p.m.	A WELCOME ADDRESS by the Chairman, Medical Staff Committee and Hospital Audit Coordinator
Thursday, 3rd Aug.,'95, at 8.00 a.m.	A/E Department - Medical Staff Training
Thursday, 3rd Aug.,'95, at 2.00 p.m.	Major Trauma Study Day
Friday, 4th Aug.,'95, at 8.00 a.m.	A/E Department - Medical Staff Training
7th to 31st Aug.,'95, at 8.00 a.m.	**A/E Department - Medical Staff Training**
Tuesday, 15th Aug.,'95, at 1.00 p.m.	MI RESUSCITATION
Wednesday, 16th Aug.,'95, at 1.00 p.m.	FLUID BALANCE, PRE AND POST OPERATIVE CARE
Thursday, 17th Aug.,'95, at 1.00 p.m.	RESPIRATORY FAILURE AND ASTHMA
Friday, 18th Aug.,'95, at 1.00 p.m.	RESUSCITATION OF THE SHOCKED PATIENT
Tuesday, 5th Sept.,'95 at 9.00 a.m.	JOINT TRAUMA AUDIT / SURGICAL MEETING
Wednesday, 6th Sept.,'95, at 1.00 p.m.	ARRYTHMIAS REVISITED
Tuesday, 12th Sept.,'95, at 1.20 p.m.	AUTOPSY REVIEW (Audit and Educational Aspects)
Wednesday, 13th Sept.,'95, at 1.00 p.m.	ACUTE GI BLEEDING
Thursday, 14th Sept.,'95, at 1.00 p.m.	VCR "TURNING THE TIDE" (Astma and CASE NOTE AUDIT

PROPOSED TIMETABLE FOR PAEDIATRIC TEACHING

FEBRUARY 1996 - JUNE 1996

TUESDAY 2.30P.M.
WEDNESDAY 2.30P.M.

21/2	The Collapsed Child	A Livingstone
28/2	Congenital Heart Disease	A Livingstone
6/3	Ventilators, Fluids, Electrolytes in NICU	N Corrigan
12/3	Cerebral Palsy	D Brown
20/3	Diabetes	M Quinn
27/3	Asthma/Bronchiolitis	B McCord
3/4	Learning Difficulties	N Corrigan
9/4	Neurodevelopmental Assessment	D Brown
17/4	H.I.E.	A Livingstone
24/4	Respiratory Problems in the Neonate	B McCord
1/5	Failure To Thrive	M Quinn
8/5	Behavioural Disorders in Children	S Hutton
15/5	Jaundice in the Neonate	N Corrigan
21/5	The VLBW Infant - Outcome	D Brown
29/5	Anaemia	B McCord
5/6	UTI	M Quinn
12/6	Child Abuse	S Hutton
19/6	Seizures in childhood	N Corrigan
25/6	Developmental Regression	D Brown

6th August, 1996, to 18th December, 1996.

Tuesday, 6th Aug,96, at 9.30 a.m.	Induction Course for Pre-Registration House Officers	
Wednesday, 7th Aug,96, at 9.00 a.m.	Induction Course for new Casualty Officers	
Wednesday, 7th Aug,96, at 12.30 p.m.	Cardiology Protocols	
Wednesday, 7th Aug,96 at 1.30 p.m.	Induction and welcome address by the Chairman and Vice Chairman of the Medical Staff Committee, the Hospital Audit Co-Ordinator and the Course Organiser for Vocational Training	
Wednesday, 7th Aug,96 at 1.20 p.m.	Fluid Balance	
Thursday, 8th Aug,96 at 8.00 a.m.	A/E Department Medical Staff Training	
Thursday, 8th Aug,96 at 1.20 p.m.	Asthma	
Friday, 9th Aug,96 at 8.00 a.m.	A/E Department Medical Staff Training	
12th Aug, to 16th Aug,96 at 8.00 a.m.	A/E Medical Staff Training	
Monday, 12th Aug,96 at 1.00 p.m.	Address by Dr.P.B.Devlin, Postgraduate Clinical Tutor and JMS Welfare Officer	
Tuesday, 13th Aug,96 at 1.20 p.m.	Management of the Shocked Patient	
Wednesday, 14th Aug,96 at 1.20 p.m.	Acute Heart Failure	
Thursday, 15th Aug,96 at 1200 Noon	Clinical Coding	
Monday, 2nd Sept,96 at 1.20 p.m.	AUTOPSY REVIEW (AUDIT AND EDUCATIONAL ASPECTS) PRIMARY PULMONARY HYPERTENSION	SR/D
Tuesday, 3rd Sept,96 at 9.00 a.m.	JOINT TRAUMA AUDIT SURGICAL MEETING	B/R
Wednesday, 4th Sept,96 at 12.20 p.m.	ARRHYTHMIAS	SR/D
Thursday, 5th Sept,96 at 1.20 p.m.	CASE NOTE AUDIT by Dr.Jose Jacob	PGC
Friday, 6th Sept,96 at 8.20 a.m.	JOINT CHEST MEDICINE/ RADIOLOGY MEETING	FLOOR 3
Monday, 9th Sept,96 at 1.20 p.m.	MEDICAL CASE PRESENTATION (Dr.W.Dickey's Dept.)	SR/D
Wednesday, 11th Sept,96 at 12.20 p.m.	ACUTE G.I. BLEEDING	SR/D
Thursday, 12th Sept,96 at 10.00 a.m.	REGIONAL ORAL SURGERY MEETING	
Thursday, 12th Sept,96 at 1.00 p.m.	Slides on HOT STUDY (Hypertension) and Journal Club by Dr.P.McGlinchey and Dr.D.McDermott	PGC

Monday,	14th Oct,'96 at 1.20 p.m.	MEDICAL CASE PRESENTATION (Dr.J.G. Daly's Dept.)	SR/D
Tuesday, (Provisional date)	15th Oct,'96 at 7.30 p.m.	POSTGRADUATE CLINICAL EVENING MEETING Dr.Valerie Godfree, MRCOG Dep.Dir.Amarant Centre and Lecturer, Kings College Hospital, London	
Wednesday,	16th Oct,'96 at 12.20 p.m.	SEPTICAEMIA	SR/D
Thursday,	17th Oct,'96 at 1.00 p.m.	VCR: CARDIOLOGY and JOURNAL CLUB by Dr.J.G.Meade and Dr.D.Harley	PGC
Friday,	18th Oct,'96 at 8.20 a.m.	JOINT CHEST MEDICINE / RADIOLOGY MEETING	FLOOR 3
Monday,	21st Oct,'96 at 1.20 p.m.	E.N.T. CASE PRESENTATION (Mr.J.Cullen's Dept.)	SR/D
Wednesday,	23rd Oct,'96 at 12.20 p.m.	INTERPRETATION OF BIOCHEMICAL TESTS	SR/D
Thursday,	24th Oct,'96 at 1.00 p.m.	SURGICAL JOURNAL CLUB	SR/D
Monday,	28th Oct,'96 at 1.20 p.m.	OBSTETRIC/GYNAE CASE PRESENTATION (Dr.M.Parker's Dept.)	SR/D
Wednesday,	30th Oct,'96 at 12.20 p.m.	H.O. PRESENTATIONS X 2	SR/D
Thursday,	31st Oct,'96 at 1.00 p.m.	VCR: "TRANSOESOPHAGEAL ECHOES" and JOURNAL CLUB by Dr.A.T.Aldris and Dr.L.Kenny	PGC
Friday,	1st Nov,'96 at 8.20 a.m.	JOINT CHEST MEDICINE / RADIOLOGY MEETING	FLOOR 3
Monday,	4th Nov,'96 at 1.20 p.m.	MEDICAL CASE PRESENTATION (Dr.J.A.F.Beirne's Dept.)	SR/D
Tuesday,	5th Nov,'96 at 9.00 a.m.	JOINT TRAUMA AUDIT SURGICAL MEETING	B/R
Tuesday,	5th Nov,'96 at 4.30 p.m.	MEDICAL DIVISION'S AUDIT MEETING Presenter: Dr.D.A.J.Keegan	SR/D
Wednesday,	6th Nov,'96 at 12.20 p.m.	VAGINAL BLEEDING AND BASIC GYNAE ULTRASOUND	SR/D
Thursday,	7th Nov,'96 at 1.20 p.m.	CASE NOTE AUDIT by Dr.Salem M. Ali	PGC
Monday,	11th Nov,'96 at 1.20 p.m.	HAEMATOLOGICAL CASE PRESENTATION by Dr.M.F.Ryan	SR/D
Wednesday,	13th Nov,'96 at 12.20 p.m.	STROKE	SR/D

Tuesday, 2nd Sept.,97 at 9.00 a.m.	MAJOR TRAUMA TRAINING
Wednesday, 3rd Sept.,97 at 12.20 p.m.	FLUID BALANCE
Thursday, 4th Sept.,97 at 1.20 p.m.	HOW TO INTERPRET A CLINICAL PAPER by Dr.P.V.Gardiner
Tuesday, 9th Sept.,97 at 12.30 p.m.	BIOCHEMICAL CASES by Dr.M.O'Kane
Wednesday, 10th Sept.,97 at 12.20 p.m.	ARRHYTHMIAS by Dr.A.J.McNeill
Thursday, 11th Sept.,97 at 1.20 p.m.	JOURNAL CLUB by Dr.C.Steele
Tuesday, 16th Sept.,97 at 12.30 p.m.	RADIOLOGY ROUNDS - UPPER G.I. (Dr.P.V.Devlin)
Wednesday, 17th Sept.,97 at 12.20 p.m.	ASTHMA by Dr.J.G.Daly
Thursday, 18th Sept.,97 at 1.20 p.m.	INTRODUCTION TO MEDICAL AUDIT by Dr.R.A.Fulton
Tuesday, 23rd Sept.,97 at 12.30 p.m.	SURGICAL CASES by Dr.A.M.Kalam
Wednesday, 24th Sept.,97 at 12.20 p.m.	MANAGEMENT OF THE SHOCKED PATIENT by Mr.L.A.McKinney
Wednesday, 24th Sept.,97 at 7.30 p.m.	PAEDIATRIC CARDIOLOGY UPDATE by Dr.N.P. Corrigan (Venue Beech Hill Country House Hotel)
Thursday, 25th Sept.,97 at 1.20 p.m.	SKILLS WORKSHOP Joint Injection Technique
Monday, 29th Sept.,97 at 1.00 p.m.	HOW THE NHS PENSION SCHEME AFFECTS YOU (Medical Sickness, Specialist Financial Advice)
Wednesday, 1st Oct.,97 at 12.20 p.m.	TERMINAL CARE, IMPARTING BAD NEWS by Dr.A.Garvey
Wednesday, 1st Oct.,97 at 3.30 p.m.	MEDICAL GROUND ROUND by Dr.A.J.McNeill
Wednesday, 1st Oct.,97 at 4.30 p.m.	MEDICAL DIVISION'S AUDIT MEETING: Presenter Dr.M.F.Ryan
Thursday, 2nd Oct.,97 at 1.20 p.m.	JOURNAL CLUB by Dr.L.P.Robinson
Friday, 3rd Oct.,97 at 8.20 a.m.	JOINT CHEST MEDICINE/ RADIOLOGY MEETING

Tuesday,	11th Nov.,97 at 12.30 p.m.	RHEUMATOLOGY UPDATE by Dr.P.V.Gardiner
Wednesday,	12th Nov.,97 at 12.20 p.m.	ACUTE ABDOMINAL PAIN by Mr.K.J.S.Panesar
Thursday,	13th Nov.,97 at 1.20 p.m.	MEDICAL AUDIT - WARD 3
Tuesday,	18th Nov.,97 at 12.30 p.m.	PATHOLOGY ROUNDS by Dr.D.F.C.Hughes
Wednesday,	19th Nov.,97 at 12.20 p.m.	INTERPRETATION OF BIOCHEMICAL TESTS by Dr.M.O'Kane
Thursday,	20th Nov.,97 at 1.20 p.m.	SKILLS WORKSHOP - EPIDURALS
Friday,	21st Nov.,97 at 8.20 a.m.	JOINT CHEST MEDICINE / RADIOLOGY MEETING
Tuesday,	25th Nov.,97 at 12.30 p.m.	SURGICAL CASES by Mr. W. Harris
Wednesday,	26th Nov.,97 at 1.00 p.m.	VAGINAL BLEEDING AND BASIC GYNAE ULTRASOUND by Dr.D.H.Martin
Thursday,	27th Nov.,97 at 1.20 p.m.	MEDICAL AUDIT - WARD 1
Tuesday,	2nd Dec.,97 at 9.30 a.m.	JOINT TRAUMA AUDIT MEETING
Tuesday,	2nd Dec.,97 at 3.30 p.m.	MEDICAL GRAND ROUND by Dr.P.V.Gardiner
Tuesday,	2nd Dec.,97 at 4.30 p.m.	MEDICAL DIVISION'S AUDIT MEETING by Dr.J.A.F.Beirne
Wednesday,	3rd Dec.,97 at 12.20 p.m.	THE HOSPITAL/G.P.INTERFACE by Dr.Dermot Connolly
Thursday,	4th Dec.,97 at 1.20 p.m.	JOURNAL CLUB by Dr.S.McBride
Friday,	5th Dec.,97 at 8.20 a.m.	JOINT CHEST MEDICINE/ RADIOLOGY MEETING
Tuesday,	9th Dec.,97 at 1.00 p.m.	JUNIOR DOCTORS' COMMITTEE OF THE B.M.A.
Wednesday,	10th Dec.,97 at 12.20 p.m.	PREPARING FOR AN INTERVIEW by Dr.D.A.J. Keegan
Thursday,	11th Dec.,97 at 1.20 p.m.	MEDICAL AUDIT - GERIATRIC DEPARTMENT
Tuesday,	16th Dec.,97 at 12.30 p.m.	CHRISTMAS QUIZ

Tuesday, 25th Aug.,98 at 12.30 p.m. Acute Pain Management by Dr.Kathleen Kelly

Tuesday, 8th Sept.,98 at 12.30 p.m. Cardiology Update by Dr. A. J. McNeill

Wednesday, 9th Sept.,98 at 12.30 p.m. Medical Sickness

Thursday, 10th Sept,98 at 1.00p.m. VCR: Platelets, Plaques and Patients and Journal Club by Dr. Aine Herron

Thursday, 10th Sept,98 at 10.00 a.m.Regional Oral Surgery Meeting

Friday, 11th Sept.,98 at 12.30 p.m. Clinical Coding Awareness

Monday, 14th Sept.,98 at 12.30 p.m. Gynae Audit by Dr.M.J.R.Parker

Tuesday, 15th Sept.,98 at 12.30 p.m. Clinical Coding Awareness

Wednesday, 16th Sept.,98 at 12.30 p.m. Fluid Balance by Dr.E.Devlin

Thursday, 17th Sept.,98 at 1.00 p.m. VCR and Journal Club by Dr.C.Hughes

Friday, 18th Sept.,98 at 8.20 a.m. Joint Chest/Medicine Radiology Meeting

Tuesday, 22nd Sept.,98 at 12.30 p.m. Rheumatology Update by Dr.Philip Gardiner

Wednesday, 23rd Sept.,98 at 12.30 p.m. Arrhythmias by Dr. A. J. McNeill

Thursday, 24th Sept.,98 at 1.00 p.m. CASE NOTE AUDIT by Dr.Simon McBride

Friday, 25th Sept.,98 at 2.00 p.m. Regional Eye Meeting

Tuesday, 29th Sept.,98 at 12.30 p.m. Medical Management of Stroke by Dr.Ailbe Beirne

Wednesday, 30th Sept.,98 at 12.30 p.m. Meeting with Educational Supervisor

LUMBAR PUNCTURE by
Dr. R. Tandon

Friday, 15th Jan.,99 at 8.20 a.m. JOINT CHEST MEDICINE/
RADIOLOGY MEETING

Tuesday, 19th Jan.,99 at 12.30 p.m. CLINICO-PATHOLOGICAL
CONFERENCE by Dr.D.F.C.Hughes

Wednesday,20th Jan.,99 at 12.30 p.m. RISK MANAGEMENT by
Mrs.T.Brown

Thursday,21st Jan.,99 at 1.00 p.m. VCR: Hypertension and
JOURNAL CLUB (Two G.P.
trainees, Dr.D.McDermott,
G.P.topics chosen by Dr.Smith)

Wednesday,27th Jan.,99 at 12.30 p.m. BACK PAIN by Mr.J.McCormack

Wednesday, 27th Jan.,99 at 7.30 p.m. Advances in Management of
Inflammatory Bowel Disease
by Mr.Keith R.Gardiner

Thursday,28th Jan.,99 at 1.30 p.m. NEUROLOGY TEACHING by
Dr.J.M.Gibson

Wednesday, 3rd Feb.,99 at 3.30 p.m. MEDICAL GRAND ROUND by
Dr.J.G.Daly

Wednesday, 3rd Feb.,99 at 4.30 p.m. MEDICAL DIVISION'S AUDIT
MEETING by Dr.R.J.G.Cuthbert

Thursday, 4th Feb.,99 at 1.00 p.m. Advances in the Treatment of
Rheumatoid Arthritis by
Dr.P.V.Gardiner

Thursday, 4th Feb.,99 at 7.30 p.m. Medical Advances in Heart
Failure by Dr.J.A.Purvis

Friday, 5th Feb.,99 at 8.20 a.m. JOINT CHEST MEDICINE/
RADIOLOGY MEETING

Monday, 8th Feb.,99 at 12.30 p.m. JUNIOR MEDICAL STAFF AUDIT

Wednesday,10th Feb.,99 at 12.30 p.m. CARE OF THE PREGNANT LADY
ON THE MEDICAL OR SURGICAL WARD
by Dr.D.H.Martin

Thursday, 11th Feb.,99 at 1.00 p.m. JOURNAL CLUB by Dr.S.O'Hagan
and Dr.A.McMenamin
Lack of effort of treating helicobacter pylori infection in patients with non-ulcer dyspepsia.

Tuesday, 16th Feb.,99 at 12.30 p.m. Update of Therapy by
Dr.J.Larkin

Wednesday, 17th Feb.,99 at 12.30 p.m. INTERPRETATION OF
BIOCHEMICAL TESTS by
Dr. M. O'Kane

Friday, 16th April,99 at 8.20 a.m. Joint Chest Medicine/ Radiology Meeting

Wednesday, 21st April,99 at 12.45 p.m. Interpretation of Biochemical Tests by Dr.Maurice O'Kane

Thursday, 22nd April,99 at 1.30 p.m. Neurology Teaching by Dr.Mark Gibson,

Thursday, 22nd April,99 at 4.00 p.m. Medical Division's Audit Meeting : "Audit of Dexa Scanning" by Dr. D. A. J. Keegan

Tuesday, 27th April,99 at 12.30 p.m. Cardiology Update by Dr.H.M.Dunn

Thursday, 29th April,99 at 1.00 p.m. Anti-Tumour Necrosis Factor in Rheumatoid Arthritis by Dr.Clare Matthews

Wednesday, 5th May,99 at 12.45 p.m. Medical Management of Inflammatory Bowel Disease by Mr.A.Armstrong

Wednesday, 5th May,99 at 12.45 p.m. Eye Meeting

Wednesday, 5th May,99 at 4.00 p.m. Medical Grand Round by Dr.M.F.Ryan

Wednesday, 5th May,99 at 4.30 p.m. Medical Division's Audit Meeting presented by Dr.R.J.M. Quinn "Audit of Accuracy of Clinical Diagnosis of Cardiac Conditions in Children"

Thursday, 6th May,99 at 1.00 p.m. Journal Club by Dr.H.Smyth and Dr.E.Napier

A controlled trial of high-dose intravenous immune globulin infusions as treatment for dermatomyositis. New.Engl. J. of Medicine, December, 30th, 1993, Vol.329: No. 27

Clinical outcome in relation to care in centres specialising in cystic fibrosis: cross sectional study. B.M.J., 13th June,'98 316: (7147) 1771.

Friday, 7th May,99 at 8.20 a.m. Joint Chest Medicine/Radiology Meeting

Tuesday, 11th May,99 at 12.30 p.m. Latex Allergy by Dr. R. A. Fulton

Wednesday, 12th May,99 at 12.45 p.m. Eye Meeting

Thursday, 13th May,99 at 2.00 p.m. Clinical Audit Symposium

1st/3rd	Thursday	at	1.00 p.m.	Surgical Meeting
2nd/4th	Thursday	at	1.00 p.m.	Surgical/Radiology Meeting
1st/3rd	Thursday	at	1.00 p.m.	Journal Club
2nd	Thursday	at	1.00 p.m.	Skills Workshop
4th	Thursday	at	1.30 p.m.	Neurology Teaching
5th	Thursday	at	1.00 p.m.	Case Note Audit
Monthly	Thursday	at	2.30 p.m.	Trainee G.P.Tutorials
Each	Friday	at	8.00 a.m.	Anaesthetic Tutorial
Each	Friday	at	12.30 p.m.	Paediatric Clinical Meeting
Each	Friday	at	12.30 p.m.	I.C.U. Teaching Ward Round
1st/3rd	Friday	at	8.20 a.m.	Joint Chest Medicine/ Radiology Meeting
2nd	Friday	at	12.30 p.m.	Gastro-Pathology/Radiology Meeting
Last	Friday	at	4.00 p.m.	Cardiology Ward Meeting
Daily				Post-Take SHO Ward Round
Weekly				MRCP Teaching Ward Rounds
Weekly				SHO Teaching
Monthly		at	7.30 p.m.	Postgraduate Clinical Evening Meeting
Yearly		at	2.00 p.m.	Regional Ophthalmic Meeting
Quarterly		at	9.00 a.m.	Major Trauma Training
Yearly		at	10.00 a.m.	Oral Surgery Regional Audit Meeting
Yearly		at	2.00 p.m.	Regional Orthodontic Meeting

Tuesday, 3rd Aug.,99 at 9.30 a.m. Induction Course for JHOs

Wednesday, 4th Aug.,99 at 9.30 a.m. Induction Course for SHOs, SpR/Regs

Tuesday, 17th Aug.,99 at 12.30 p.m. Surgical Emergencies by Mr. M. Hussien

Tuesday, 24th Aug.,99 at 12.30 p.m. Acute Pain Management by Dr.Kathleen Kelly

Wednesday, 8th Sept.,99 at 12.30 p.m. Fluid Balance by Dr.E.Devlin

Tuesday, 26th Oct.,99 at 12.30 p.m.	Cardiology Case Presentation by Dr.M.Kelly
Wednesday, 27th Oct.,99 at 12.30 p.m.	The Correct Antibiotics for the Job by Dr.G.M.Glynn
Wednesday, 27th Oct.,99 at 7.30 p.m.	Reporting Deaths to the Coroner by Professor Jack Crane
Thursday, 28th Oct.,99 at 1.30 p.m.	Neurology Teaching by Dr.J.Mark Gibson
Tuesday, 2nd Nov.,99 at 3.30 p.m.	Medical Grand Round by Dr.P.V.Gardiner
Tuesday, 2nd Nov.,99 at 4.30 p.m.	Medical Division's Audit Meeting by Dr.J.G.Daly
Wednesday, 3rd Nov.,99 at 12.30 p.m.	Educational Supervisor Feedback by Dr.J.Moohan
Wednesday, 3rd Nov.,99 at 12.45 p.m.	Eye Meeting by Miss Janet Sinton
Thursday, 4th Nov.,99 at 1.00 p.m.	Audit of Pain Control and Use of Syringe Drivers by Dr.Angela Garvey, N.Ireland Hospice
Thursday, 4th Nov.,99 at 1.00 p.m.	Surgical Journal Club
Monday, 8th Nov.,99 at 12.30 p.m.	Junior Medical Staff Audit Meeting
Tuesday, 9th Nov.,99 at 8.30 a.m.	E.C.G.Interpretation by Dr.H.M.Dunn
Wednesday, 10th Nov.,99 at 12.30 p.m.	Interpretation of Biochemical Tests by Dr. Maurice O'Kane
Wednesday, 10th Nov.,99 at 12.45 p.m.	Eye Meeting by Mr.N.K.Sharma
Wednesday, 10th Nov.,99 at 7.30 p.m.	Pulmonary Sarcoidosis by Dr.R.Sharkey
Thursday, 11th Nov.,99 at 1.00 p.m.	Journal Club by Dr.J.Toner

Effect of cigar smoking on the risk of cardiovascular disease, chronic obstructive pulmonary disease, and cancer in men. New Eng.J.Medicine, Vol.340: No.23; 10th June, 1999

Thursday, 11th Nov.,99 at 1.00 p.m.	Surgical/X-ray Meeting
Tuesday, 16th Nov.,99 at 8.30 a.m.	E.C.G.Interpretation

Each	Thursday	at	9.30 a.m.	Vocational Training, Day Release Course
Each	Thursday	at	12.30 p.m.	Breast Screening Meeting
1st/3rd	Thursday	at	1.00 p.m.	Surgical Meeting
2nd/4th	Thursday	at	1.00 p.m.	Surgical/Radiology Meeting
1st/3rd	Thursday	at	1.00 p.m.	Journal Club
2nd	Thursday	at	1.00 p.m.	Evidence Based Reviews
4th	Thursday	at	1.30 p.m.	Neurology Teaching
5th	Thursday	at	1.00 p.m.	Case Note Audit
Monthly	Thursday	at	2.30 p.m.	Trainee G.P.Tutorials
Each	Friday	at	8.00 a.m.	Anaesthetic Tutorial
Each	Friday	at	12.30 p.m.	Paediatric Clinical Meeting
2nd	Friday	at	12.30 p.m.	Gastro-Pathology/Radiology Meeting
Last	Friday	at	4.00 p.m.	Cardiology Ward Meeting
Daily				Post-take SHO Ward Round
Weekly				MRCP Teaching Ward Rounds
Weekly				SHO Teaching
Monthly		at	7.30 p.m.	Postgraduate Clinical Evening Meeting
Yearly		at	2.00 p.m.	Regional Ophthalmic Meeting
Quarterly		at	9.00 a.m.	Major Trauma Training
Yearly		at	10.00 a.m.	Oral Surgery Regional Audit Meeting
Yearly		at	2.00 p.m.	Regional Orthodontic Meeting

Friday, 4th Aug.,2000 at 12.30 p.m. Breaking Bad News by Dr.Angela Garvey

Wednesday, 9th Aug.,2000 at 12.30 p.m. Management of Fluid Balance by Dr.B.Morrow

Thursday, 10th Aug.,2000 at 1.00 p.m. Legal Issues by Mrs.T.Brown

Wednesday, 16th Aug.,2000 at 12.30 p.m. Management of Shock by Mr.J. Steele

Thursday, 10th Feb.,2000 at 1.00 p.m. Journal Club by Dr.R.Thomasius
Peptic Ulcer Bleeding: Accessory risk factors and interactions with non-steroidal anti-inflammatory drugs. GUT, 2000, 46:

Monday, 14th Feb.,2000, at 12.30 p.m. Junior Medical Staff Audit
Gynae Audit

Wednesday, 16th Feb.,2000 at 12.30 p.m. Interpretation of Biochemical Tests by Dr.M.O'Kane

Wednesday, 16th Feb.,2000 at 7.30 p.m. Dysphagia Demystified by Mr.Greg McBride

Thursday, 17th Feb.,2000 at 1.00 p.m. A case of P.M.L. presenting to an Acute Stroke Unit by Dr.D.Hart

Thursday, 17th Feb.,2000 at 1.00 p.m. Surgical Journal Club by Mr.P.G.Bateson

Tuesday, 22nd Feb.,2000 at 12.30 p.m. Advances in Rheumatology by Dr.P.V.Gardiner

Wednesday, 23rd Feb.,2000 at 12.30 p.m. Head Injury by Dr.S.Woolsey

Wednesday, 23rd Feb.,2000 at 12.45 p.m. Eye Meeting

Thursday, 24th Feb.,2000 at 1.00 p.m. The Limitation of N.H.S. Indemnity

Tuesday, 29th Feb.,2000 at 12.30 p.m. Acute Renal Failure by Dr.E.Bergin

Wednesday, 1st March,2000 at 12.30 p.m. Preparing for an Interview by Mr.A.Kennedy

Wednesday, 1st March,2000 at 12.45 p.m. Eye Meeting

Thursday, 2nd March,2000 at 1.00 p.m. Case Note Audit by Dr.J.Courtney

Thursday, 2nd March,2000, at 1.00 p.m. Fundoplication -Open vs. Laparoscopic by Mr.Yousaf

Tuesday, 7th March,2000, at 9.15 a.m. Trauma Training, Airway Management, Chest Drainage IV Access, Radiology

Tuesday, 7th March,2000, at 4.00 p.m. Medical Grand Round by Dr.H.M.Dunn

Tuesday, 7th March,2000, at 4.30 p.m. Medical Division's Audit Meeting by Dr.A.Nel
An Audit of CT Scans in Children

Wednesday, 8th March, 2000, at 12.30 p.m. Acute Management of Fractures by Mr.J.McCormack

Wednesday, 12th April,2000 at 12.30 p.m. Presentation Skills by Ms Jeanette Dunlop, Management Development Unit

Wednesday, 12th April, 2000 at 1.00 p.m. Eye Meeting

Wednesday, 12th Apri, 2000, at 7.30 p.m. A Modern Approach to Pain by Dr.C.O'Hare

Thursday, 13th April,2000 at 1.00 p.m.Drug Therapy in Parkinson's Disease by Dr.A.Beirne

Thursday, 13th April,2000, at 1.00 p.m. Surgical Journal Club by Mr.R.Gilliland.

Friday, 14th April,2000, at 2.00 p.m. Hospital Breast Feeding Policy - Baby Friendly Initiative by Dr.C.Campbell.

Monday, 17th April,2000, at 12.30 p.m. Junior Medical Staff Audit Obstetric/Gynae Audit by Dr.R.Friel

Wednesday, 19th April,2000, at 12.45 p.m. Eye Meeting

Thursday, 20th April,2000, at 1.00 p.m. Journal Club by Dr.T.S.Yam

Rethinking the role of tube feeding in patients with advanced dementia. N.Eng.J.Medicine Vol.325: No.3; 20th January,2000.

Thursday, 4th May,2000 at 1.00 p.m. SKILLS WORKSHOP - Suturing Techniques by Mr.L.A.McKinney

Thursday, 4th May,2000, at 1.00 p.m. Surgical/X-ray Meeting

Wednesday, 10th May,2000 at 12.45 p.m. Interpretation of Biochemical Tests by Dr. M. O'Kane

Thursday, 11th May,2000 at 1.00 p.m. Effectiveness of D-Dimer as an exclusive test for Thrombo-embolism by Dr.Dominic Hart

Thursday, 11th May,2000 at 1.00 p.m. Surgical Journal Club

Tuesday, 16th May,2000, at 4.30 p.m. Medical Division's Audit Meeting by Dr.P.V.Gardiner

"Audit of the Management of Rheumatoid Arthritis in Outpatients"

Thursday, 18th May,2000, 10.00 a.m. to 2.00 p.m. RCP Visit

Thursday, 18th May,2000, at 1.00 p.m. Surgical/X-ray Meeting

Thursday, 25th May,2000, at 2.00 p.m. Clinical Audit Symposium

Each	Thursday	at	12.30 p.m.	Breast Screening Meeting
1st/3rd	Thursday	at	1.00 p.m.	Surgical Journal Club
2nd/4th	Thursday	at	1.00 p.m.	Surgical/Radiology Meeting
1st/3rd	Thursday	at	1.00 p.m.	Journal Club
2nd	Thursday	at	1.00 p.m.	Evidence Based Reviews
4th	Thursday	at	1.30 p.m.	Neurology Teaching
5th	Thursday	at	1.00 p.m.	Case Note Audit
Monthly	Thursday	at	2.30 p.m.	Trainee G.P.Tutorials
Each	Friday	at	8.00 a.m.	Anaesthetic Tutorial
Each	Friday	at	12.30 p.m.	Paediatric Clinical Meeting
Each	Friday	at	12.30 p.m.	Joint Chest Medicine/ Radiology Meeting
2nd	Friday	at	12.30 p.m.	Gastro-Pathology/Radiology Meeting
Last	Friday	at	4.00 p.m.	Cardiology Ward Meeting
Daily				Post-take SHO Ward Round
Weekly				MRCP Teaching Ward Rounds
Weekly				SHO Teaching
Monthly		at	7.30 p.m.	Postgraduate Clinical Evening Meeting
Yearly		at	2.00 p.m.	Regional Ophthalmic Meeting
Quarterly		at	9.00 a.m.	Major Trauma Training
Yearly		at	10.00 a.m.	Oral Surgery Regional Audit Meeting
Yearly		at	2.00 p.m.	Regional Orthodontic Meeting

Wednesday, 8th Aug.,01, at 12.30 p.m. Management of Bluid Balance by Dr.B.Morrow

Thursday, 9th Aug.,01 at 12.30 p.m. Management of Respiratory Distress by Dr.R.Sharkey

Wednesday, 15th Aug.,01 at 12.30 p.m. Legal Issues by Mrs.T.Brown

Wednesday, 22nd Aug.,01 at 12.30 p.m. Management of Shock by Mr. James Steele

Tuesday, 4th Sept.,01 at 12.30 p.m. Clinico-Pathological Conference by Dr.M.Madden

Wednesday, 3rd Oct.,01 at 12.30 p.m Interpretation of Biochemical Tests by Dr.M.O'Kane

Thursday, 4th Oct.,01 at 12.30 p.m. Journal Club by Dr.L.Ranga

Diet, lifestyle, and the risk of Type 2 diabetes mellitus in women. (New Eng.J.Med., Vol.345: No.11; 13.9.01)

Thursday, 4th Oct.,01 at 1.00 p.m. Surgical/X-ray Meeting

Tuesday, 9th Oct.,01 at 8.30 a.m. E.C.G.Interpretation by Dr.Dunn

Tuesday, 9th Oct.,01 at 12.30 p.m Breaking Bad News by Dr.A.Garvey

Wednesday, 10th Oct.,01 at 12.30 p.m. Management of Bleeding from Upper G.I. Tract by Mr.R.Gilliland

Wednesday, 10th Oct.,01 at 12.30 p.m. Ophthalmic Journal Club by Mr.D.A.Mulholland

Thursday, 11th Oct.,01 at 1.00 p.m.Journal Club by Dr.B.Gallagher and Dr.A.McCusker
Inhibition of serotonin reuptake by antidepressants and upper gastrointestinal bleeding in elderly patients: retrospective cohort study (BMJ, Vol.323: 22.9.01)

Helicobacter pylori infection and the development of gastric cancer (New Eng.J.Med., Vol.345: No.11; 13.9.01)

Thursday, 11th Oct.,01 at 1.00 p.m. Surgical Journal Club

Friday, 12th Oct.,01 at 9.00 a.m. Ophthalmic Case Presentation by Dr.A.Knox

Tuesday, 16th Oct.,01 at 8.30 a.m. E.C.G.Interpretation by Dr.H.M.Dunn

Tuesday, 16th Oct.,01 at 12.30 p.m. Recent Advances in the Management of Rheumatoid Arthritis by Dr.P.V.Gardiner

Wednesday, 17th Oct.,01 at 12.30 p.m. Abdominal Pain in the Young Female by Dr.S.Matthews

Wednesday, 17th Oct.,01 at 12.30 p.m. Eye Journal Club by Miss M.E.A.Hanna

Thursday, 18th Oct.,01 at 1.00 p.m. Case Note Audit by Dr.A.Courtney

Thursday, 18th Oct.,01 at 1.00 p.m. Surgical/X-ray Meeting

Friday, 19th Oct.,01 at 9.00 a.m. Ophthalmic Case Presentation by Dr.S.George

Tuesday, 23rd Oct.,01 at 8.30 a.m.E.C.G.Interpretation by Dr.Dunn

Tuesday, 23rd Oct.,01 at 4.00 p.m. Medical Division's Audit Meeting by Dr.P.Podmore

Tuesday, 14th May,02 at 12.30 p.m. Clinical Chemistry Update by Dr. M. O'Kane

Wednesday, 15th May,02 at 12.30 p.m. Ultrasound Training - Spectrum Ophthalmics

Thursday, 16th May,02 at 1.00 p.m. Journal Club by Dr.R.Sarup
Effect of Carvedilol on survival in severe chronic heart failure.
(New Eng.J.Med., Vol.344; No.22: 31st May, 2001).

Thursday, 16th May,02 at 1.00 p.m. Surgical/Radiology Meeting

Friday, 17th May,02 at 9.00 a.m. Ophthalmic Case Presentation by Dr.S.George

Tuesday, 21st May,02 at 3.30 p.m. Medical Grand Round by Dr.R.Sharkey

Tuesday, 21st May,02 at 4.30 p.m.Medical Division's Audit Meeting
Comparative Prospective Audit of NICU performance in Altnagelvin and N.Ireland by Dr.D.A.Brown

Wednesday, 22nd May,02 at 12.30 p.m. Ophthalmic Journal Club by the Orthoptic Dept.

Thursday, 23rd May,02 at 1.00 p.m. Tachyarrhythmias by Dr.S.Barr

Thursday, 23rd May,02 at 1.00 p.m. Surgical Journal Club

Friday, 24th May,02 at 9.00 a.m. Ophthalmic Case Presentation by Dr.U.Bhatt

Tuesday, 28th May,02 at 12.30 p.m. Community Acquired Pneumonia by Dr.J.G.Daly

Wednesday,29th May,02 at 12.30 p.m. Care of the Dying - the last 24 Hours by Dr.A.Garvey

Wednesday, 29th May,02 at 12.30 p.m Ophthalmic Journal Club by Dr.S.George

Thursday, 30th May,02 at 1.00 p.m. Journal Club by Dr.M.Curran and Dr.N.Sheridan
Validation of a clinical decision aid to discontinue in-hospital cardiac arrest resuscitation (JAMA, Vol.285, No.12; 28.3.01)

One-time screening for colorectal cancer with combined fecal occult-blood testing and examination of the distal colon.
(New Eng.J.Med Vol. [illegible] No.8; 23.8.2001)

Thursday, 30th May [illegible] 1.00 p.m. Surgical/Radiology Meeting

Wednesday, 5th Ju[illegible] 12.45 p.m. Pain Control by Dr.A.Garvey

Wednesday, 5th Ju[illegible] 2.30 p.m. Ophthalmic Journal Club by Dr.U.Bhatt

Thursday, 6th Ju[illegible] p.m. Skills Workshop: Suturing Techniques by Mr.L.A.McKinney

4th	Thursday	at	1.30 p.m.	Neurology Teaching
Monthly	Thursday	at	2.30 p.m.	SHO/GP Tutorials
Each	Friday	at	8.00 a.m.	Anaesthetic Tutorial
Each	Friday	at	9.00 a.m.	Ophthalmic Case Presentation
Each	Friday	at	1200 Noon	Paediatric Clinical Meeting
Each	Friday	at	12.30 p.m.	Joint Chest Medicine/Radiology Meeting
4th	Friday	at	4.00 p.m.	Cardiology Ward Meeting

Daily Post-take SHO Ward Rounds
Weekly MRCP Teaching Ward Rounds
Weekly SHO teaching

Monthly at 7.30 p.m. Postgraduate Clinical Evening Meeting
Yearly at 2.00 p.m. Regional Ophthalmic Meeting
Quarterly at 9.00 a.m. Major Trauma Training
Yearly at 10.00 a.m. Oral Surgery Regional Audit Meeting

Tuesday, 6th Aug.,02 at 9.00 a.m. Induction programme for JHOs
Wednesday, 7th Aug.,02 at 9.30 a.m. Induction programme for SHOs, Registrars and SpRs
Wednesday, 14th Aug.,02 at 12.30 p.m. Breaking Bad News by Dr.A.Garvey
Thusday, 15th Aug.,02 at 12.30 p.m. Management of Respiratory Distress By Dr.R.Sharkey
Wednesday, 21st Aug.,02 at 12.30 p.m. Management of Shock by Mr. J. Steele
Thursday, 22nd Aug.,02 at 12.30 p.m. Pain Control and Care of the Dying By Dr.A.Garvey
Wednesday, 28th Aug.,02 at 12.30 p.m. Management of Fluid Balance by Dr.B.C.Morrow
Thursday, 29th Aug.,02 at 12.30 p.m. Legal Issues by Mrs.T.Brown

Tuesday,10th Sept.,02 at 8.30 a.m. ECG Bradyarrhythmias by Dr.H.Dunn
Tuesday, 10th Sept,02 at 12.30 p.m. Acute Coronary Syndrome by Dr.A. J. McNeill
Wednesday,11th Sept.,02 at 12.30 p.m. Management of Acute Heart Failure by Dr. S.Barr
Thursday, 12th Sept,02 at 1.00 p.m.Indications for Treadmill/limitatitions/ Alternatives by Dr.H.M.Dunn

Tuesday, 17th Sept.02 at 8.30 a.m. ECG Tachyarrhythmias by Dr.H.Dunn
Tuesday, 17th Sept.02 at 12.30 p.m. Drug Overdose/Poisoning by Mr. L. A. McKinney
Wednesday, 18th Sept,02 at 12.30 p.m.Management of Acute Diabetic Problems by Dr. M.O'Kane
Thursday, 19th Sept.,02 at 1.00 p.m. Evidence Based Medicine – Atrial Fibrillation
Tuesday, 24th Sept.,02 at 8.30 a.m. ECG – Acute M.I. by Dr.H.Dunn
Tuesday, 24th Sept.,02 at 12.30 p.m. Stroke by Dr.J.G.McElroy
Wedneday, 25th Sept.,02 at 12.30 p.m. ECG Interpretation/Management Of Common Arrhythmias by Dr.A.J.McNeill
Thursday, 26th Sept.,02 at 1.30 p.m. Neurology Teaching by Dr.J.M.Gibson
Tuesday, 1st Oct.,02 at 8.30 a.m. ECG – ST/T Wave Abnormalities by Dr. H. M. Dunn
Wednesday, 2nd Oct.,02 at 12.30 p.m. Management of Chronic Pain by Dr.C.O'Hare
Thursday, 3rd Oct.,02 at at 1.00 p.m. Case Presentation (Gastroenterology)
Tuesday, 8th Oct.,02 at 3.30 p.m. Medical Grand Round by Dr.P.Gardiner
Tuesday, 8th Oct..,02 at 4.30 p.m Medical Division's Audit Meeting by Dr.R.Sharkey
Wednesday, 9th Oct.,02 at 12.30 p.m. Interpretation of Biochemical Tests by Dr. M. O'Kane
Thursday, 10th Oct.,02 at 1.00 p.m. Radiology for Acute Medical Emergencies
Tuesday, 15th Oct.,02 at 12.30 p.m. Fulminant Liver Failure by Dr.W.Dickey
Wednesday, 16th Oct.,02 at 12.30 p.m.Management of Bleeding from Upper G.I. Tract by Mr.R.Gilliland
Thursday, 17th Oct.,02 at 1.00 p.m. EBM/Journal Club (Respiratory)
Tuesday, 22nd Oct.,02 at 12.30 p.m. Diabetic Ketoacidosis by Dr. K.W.Moles
Wednesday, 23rd Oct.,02 at 12.30 p.m. Abdominal Pain in the Young Female
Thursday, 24th Oct.,02 at 1.30 p.m. Neurology Teaching by Dr.J.M.Gibson
Tuesday, 29th Oct.,02 at 12.30 p.m. Acute Renal Failure by Dr.P.Garrett
Wednesday, 30th Oct.,02 at 12.30 p.m.Educational Co-ordinator Feedback Session
Thursday, 31st Oct.,02 at 1.00 p.m. Interpretation of Results by Dr.M.O'Kane
Tuesday, 5th Nov.,02 at 3.30 p.m. Medical Grand Round by Dr.J.Purvis
Tuesday, 5th Nov.,02 at 4.30 p.m. Medical Division's Audit Meeting by Dr.K.W.Moles

Wednesday, 6th Nov.,02 at 12.30 p.m. JHO Audit Presentations X 2
Thursday, 7th Nov.,02 at 1.00 p.m. Review of Guidelines
Tuesday, 12th Nov.,02 at 12.30 p.m. Heart Failure by Dr.J.A.Purvis
Wednesday,13th Nov.,02 at 12.30 p.m. Management of Acute Back Pain By Mr.A.R.Wray
Thursday, 14th Nov.,02 at 1.00 p.m. Case Presentation (Cardiology)
Tuesday, 19th Nov.,02 at 12.30 p.m. Electrolyte Disturbance by Dr. M. O'Kane
Wednesday, 20th Nov.,02 at 12.30 p.m. Blood Products Transfusion/Management of Haematological Emergencies
Thursday, 21st Nov.,02 at 1.00 p.m. Junior Medical Staff Audit Presentations of Planned Audit X 2
Tuesday, 26th Nov.,02 at 12.30 p.m. Dermatology – Drug Eruptions by Dr. R. A. Fulton
Wednesday, 27th Nov.,02 at 12.30 p.m. Presentation Skills
Thursday, 28th Nov.,02 at 1.30 p.m. Neurology Teaching by Dr.J.M.Gibson
Tuesday, 3rd Dec.,02 at 3.30 p.m. The Medical Grand Round by Dr.W.Dickey
Tuesday, 3rd Dec.,02 at 4.30 p.m. Medical Division's Audit Meeting by Dr.R.J.M. Quinn
Wednesday, 4th Dec.,02 at 12.30 p.m. Management of Bleeding from the Lower GI Tract by Mr.P.Neilly
Thursday, 5th Dec.,02 at 1.00 p.m. Guidelines – Review
Tuesday, 10th Dec.,02 at 12.30 p.m. Acute Polyarthritis by Dr.P.Gardiner
Wednesday, 11th Dec.,02 at 12.30 p.m. Dealing with Complaints by Mrs. A.Doherty
Thursday, 12th Dec.,02 at 1.00 p.m. E.C.G.Quiz

Wednesday,17th Sept.03 at 12.30 p.m. Management of Fluid Balance by Dr.B.C.Morrow
Wednesday,17th Sept.03 at 12.30 p.m. Ophthalmic Journal Club by Miss J.Sinton
Wednesday,17th Sept.,03 at 12.45 p.m. Cochrane Research by Dr.A.Nelson
Thursday, 18th Sept.,03 at 1.00 p.m. Electrolyte Disturbance by Dr.M.O'Kane
Thursday, 18th Sept.,03 at 6.30 p.m. Update in Juvenile Idiopathic Arthritis by Dr. M.E.Rooney
Monday, 22nd Sept.,03 at 12.30 p.m. ECG Interpretation – Atrial Rhythm by Dr. D.McCarty
Tuesday, 23rd Sept.,03 at 12.30 p.m. Rheumatology Journal Article by Dr.L.Ranga
Wednesday, 24th Sept.,03 at 10.30 a.m. Multiple Pregnancy
Wednesday,24th Sept,03 at 12.30 p.m. Care of the Dying by Dr.A.Garvey
Wednesday, 24th Sept.,03 at 12.30 p.m. Ophthalmic Journal Club by Mr.D.Mulholland
Thursday, 25th Sept.,03 at 1.30 p.m. Neurology Teaching by Dr.J.M.Gibson
Monday, 29th Sept.,03 at 12.30 p.m. ECG Interpretation by Dr.D.McCarty
Tuesday, 30th Sept.,03 at 12.30 p.m. Management of Acute Respiratory Failure by Dr. R. A. Sharkey
Wednesday, 1st Oct.,03 at 10.30 a.m. Endometriosis and Pelvic Pain
Wednesday, 1st Oct.,03 at 12.30 p.m Management of Acute Diabetic Problems by Dr.K.W.Moles
Wednesday, 1st Oct.,03 at 12.30 p.m. Ophthalmic Journal Club by Dr.C.Mulholland
Wednesday, 1st Oct.,03 at 12.30 p.m. Inflammation and Coagulation by Dr.McKee
Thursday, 2nd Oct.,03 at 1.00 p.m. Diabetic Emergencies by Dr.K.W.Moles
Monday, 6th Oct.,03 at 12.30 p.m. ECG Interpretation by Dr.D.McCarty
Tuesday, 7th Oct.,03 at 12.30 p.m. Acute Coronary Syndrome by Dr.A.J.McNeill
Wednesday, 8th Oct.,03 at 10.30 a.m. Abnormal Smears and Colposcopy
Wednesday, 8th Oct.,03 at 12.30 p.m. ECG Interpretation/Management of Common Arrhythmias by Dr.A.J.McNeill
Wednesday, 8th Oct.,03 at 12.30 p.m. Ophthalmic Journal Club by Dr.D.Patel
Thursday, 9th Oct.,03 at 1.00 p.m. Carotid Disease by Dr. M.McCarron
Monday, 13th Oct.,03 at 12.30 p.m. ECG Interpretation by Dr.D.McCarty
Tuesday, 14th Oct.,03 at 3.30 p.m. Medical Grand Round by Dr.D.Urquhart
Tuesday, 14th Oct.,03 at 4.30 p.m. Medical Division's Audit Meeting by Dr.H.M.Dunn
Wednesday, 15th Oct.,03 at 10.30 a.m. Rhesus and Thyroid Disease in Pregnancy
Wednesday, 15th Oct.,03 at 12.30 p.m. Management of Chronic Pain by Dr.C.O'Hare
Wednesday, 15th Oct.,03 at 12.30 p.m. Ophthalmic Journal Club by Dr.C.McEvoy

Wednesday, 15th Oct.,03 at 12.30 p.m. Advances in Ventilation by Dr.S.Shenoy
Wednesday, 22nd Oct.,03 at 10.30 a.m. Diabetes and Epilepsy in Pregnancy
Thursday, 16th Oct.,03 at 1.00 p.m. Radiology for Acute Medical Emergencies by Dr. M. P.Reilly
Tuesday, 21st Oct.,03, at 12.30 p.m. Which Patients Transfer to ICU by Dr.B.C.Morrow
Wednesday, 22nd Oct.,03 at 10.30 a.m. Diabetes and Epilepsy in Pregnancy
Wednesday, 22nd Oct.,03 at 12.30 p.m. Interpretation of Biochemical Tests by Dr.M.O'Kane
Wednesday, 22nd Oct.,03 at 12.30 p.m. Ophthalmic Journal Club by Mr.S.Kamalarajah
Wednesday, 22nd Oct.,03 at 12.30 p.m. Insulin and ICU by Dr. J.McLoughlin
Thursday, 23rd Oct.,03 at 1.30 p.m. Neurology Teaching by Dr.J.M.Gibson
Tuesday, 28th Oct.,03 at 12.30 p.m Acute Cutaneous Vasculitis by Dr.R.A.Fulton
Wednesday, 29th Oct.,03 at 10.30 a.m. Urogynaecology and Prolapse
Wednesday, 29th Oct.,03 at 12.30 p.m. Management of Bleeding from the Upper G.I. Tract by Dr.C.Steele
Wednesday, 29th Oct.,03 at 12.30 p.m. Ophthalmic Journal Club by Mr.P.Hassett
Wednesday, 29th Oct.,03 at 12.30 p.m. Albumin and ICU by Dr. M.Asif
Thursday, 30th Oct,03 at 1.00 p.m. Endocarditis by Dr.H.M.Dunn
Tuesday, 4th Nov.,03 at 3.30 p.m. Medical Grand Round by Dr.J.A.F.Beirne
Tuesday, 4th Nov,03 at 4.30 p.m. Medical Division's Audit Meeting by Dr.R.A.Fulton
Wednesday, 5th Nov.,03 at 10.30 a.m. Obstetric Anaesthesia
Wednesday, 5th Nov.,03 at 12.30 p.m. Abdominal Pain in the Young Female
Wednesday, 5th Nov.,03 at 12.30 p.m. Ophthalmic Journal Club by Mrs.R.Brennan
Wednesday, 5th Nov.,03 at 12.30 p.m. Hypocapnia by Dr. K.Smyth
Thursday, 6th Nov.,03 at 1.00 p.m. Acute Connective Tissue by Dr.P.Gardiner
Tuesday, 11th Nov.,03 at 12.30 p.m. Overdose by Mr.J.Steele
Wednesday, 12th Nov.,03 at 10.30 a.m. Gynae Malignancies (Ovarian and Cervical)
Wednesday, 12th Nov.,03 at 12.30 p.m. JHO Forum – Educational Coordinator Feedback
Wednesday,12th Nov,03 at 12.30 p.m. Ophthalmic Journal Club by Dr.C.Mulholland
Wednesday, 12th Nov.,03 at 12.30 p.m. PA Catheterisation by Dr. N.Khalil
Thursday, 13th Nov.,03 at 1.00 p.m. Indications for Echo Cardiography **by Dr.D.McCarty**
Tuesday, 18th Nov.,03 at 12.30 p.m, Journal Club by Dr. C. McVeigh
Wednesday, 19th Nov.,03 at 10.30 a.m. Postnatal Problems
Wednesday, 19th Nov.,03 at 12.30 p.m. JHO Audit Presentations X 2
Wednesday, 19th Nov.,03 at 12.30 p.m. Ophthalmic Journal Club by Dr.D.Patel

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Daily	Post-take SHO Ward Rounds	
Weekly	MRCP Teaching Ward Rounds	
Weekly	SHO teaching	
Monthly	different week days	Rolling Audit Programme comprising A & E, Surgeons, Orthopaedics, Radiology and Anaesthetics
Monthly	different week days	E.N.T. Audit Meeting

Monthly at 7.30 p.m. Postgraduate Clinical Evening Meeting
Yearly at 2.00 p.m. Regional Ophthalmic Meeting
Quarterly at 2.00 a.m. Major Trauma Training
Yearly at 10.00 a.m. Oral Surgery Regional Audit Meeting
Tuesday, 3rd Aug.,04 at 9.30 a.m. Induction programme for the JHOs
Wednesday, 4th Aug.,04 at 9.30 a.m. Induction programme for SHOs and SpRs
Tuesday, 10th Aug.,04 at 12.45 p.m. The Management of Shock by Mr.J.Steele
Wednesday, 11th August,04 at 12.45 p.m. Non-Invasive Ventilation by Dr.R.Sharkey
Wednesday, 11th August,04, at 4.00 p.m. MRCP Teaching, Parts 2
Tuesday, 17th August,04, at 12.45 p.m. Guidelines in Pain Control in Cancer Patients by Dr.A.Garvey
Thursday, 19th August,04, at 12.30 p.m. Legal Issues by Mrs.T.Brown
Tuesday, 24th August,04 at 12.45 p.m. Breaking Bad News by Dr.A.Garvey
Wednesday, 25th August,04 at 4.00 p.m. MRCP, Part 2 (Clinical) Teaching by Dr.J.F.McCarthy
Thursday, 26th August,04 at 12.45 p.m. Parenteral Nutrition by Ms.Joanne Kelly
Tuesday, 31st August,04 at 12.45 p.m. ECG Interpretation by Dr.R.McMahon
Tuesday, 2nd Sept.,04 at 1.00 p.m. An Overview of the NHS Pension Scheme And Financial Planning for Young Doctors By Mr.Kieran Wilson, Medical Sickness
Monday, 6th Sept.,04 at 12.45 p.m. ECG Interpretation by Dr. R. McMahon
Tuesday, 7th Sept.,04 at 12.45 p.m. Acute Coronary Syndrome by Dr.A.J.McNeill
Wednesday, 8th Sept.,04 at 12.30 p.m. Management of Acute Heart Failure by Dr.S. Barr
Thursday, 9th Sept.,04 at 12.45 p.m. Acute Respiratory Failure by Dr.M.Kelly
Thursday, 9th Sept.,04 at 4.00 p.m. MRCP Teaching, Parts 2, by Dr.J.McCarthy
Tuesday, 14th Sept.,04 at 10.00 a.m. RCP inspection of SHO posts in General Internal Medicine
Tuesday, 14th Sept.,04 at 4.00 p.m. MRCP Teaching, Parts 2 (Clinical by Dr.McCarthy
Wednesday, 15th Sept.,04 at 12.30 p.m. Interpretation of Biochemical Tests by Dr.M.O'Kane
Thursday, 16th Sept.,04 at 12.45 p.m. Rheumatoid Arthritis Update by Dr.J.F.McCarthy

Monday, 20th Sept.,04 at 12.30 p.m. Milk and Cardiovascular Disease Risk: An Overview of Cohort Studies by Professor Elwood
Wednesday, 22nd Sept.,04 at 12.30 p.m. Care of the Dying by Dr. A.Garvey
Wednesday, 22nd Sept.,04 at 12.30 p.m. Ophthalmic Journal Club: Review of Cases
Wednesday, 22nd Sept.,04 at 4.00 p.m. MRCP Teaching, Parts 2 (Clinical) by Dr.McCarthy
Thursday, 23rd Sept.,04 at 12.45 p.m. Radiology for Acute Medical Emergencies by Dr. M. Reilly
Friday, 24th Sept.,04 at 3.00 p.m. Regional Eye Meeting
Tuesday, 28th Sept.,04 at 9.30 a.m. RCP, London: N.Ireland Regional Update in Medicine
Wednesday, 29th Sept.,04 at 12.30 p.m. Management of Fluid Balance by Dr.B.C.Morrow
Wednesday, 29th Sept.,04 at 7.30 p.m. The Sick Ward Patient – New Strategies? By Dr.B.C.Morrow
Thursday, 30th Sept.,04 at 12.45 p.m. New Diabetic Drugs by Dr.K.W.Moles
Friday, 1st Oct.,04, at 8.30 a.m. Ophthalmic Case Presentation by Dr.Williams
Monday, 4th Oct.,04 at 9.30 a.m. Annual Clinical Audit, Research and Quality Symposium
Tuesday, 5th Oct.,04 at 12.30 p.m. Medical Grand Round by Dr.J.Hamilton Thrombotic Thrombocytopenic Purpura
Tuesday, 5th Oct.,04 at 1.00 p.m. Medical Division's Audit Meeting by Dr.Podmore
Wednesday, 6th Oct.,04 at 12.30 p.m. Management of Acute Diabetic Problems by Dr.K.W.Moles
Wednesday, 6th Oct.,04 at 12.30 p.m. Ophthalmic Journal Club by Mrs.R.Brennan
Thursday, 7th Oct.,04 at 12.45 p.m. Management of Liver Failure by Dr.F.A.O'Connor
Friday, 8th Oct.,04 at 8.30 a.m. Ophthalmic Case Presentation by Dr.T.Moutray
Tuesday, 12th Oct.,04 at 12.45 p.m. Chronic Heart Failure by Dr. J.A.Purvis
Wednesday, 13th Oct.,04 at 12.30 p.m. ECG Interpretation/Management of Common Arrhythmias by Dr.A.J.McNeill
Wednesday, 13th Oct.,04 at 12.30 p.m. Ophthalmic Journal Club by Mr.D.Mulholland
Thursday, 14th Oct.,04 at 12.45 p.m. Corticosteroid Induced Osteoporosis by Dr.J.F.McCarthy
Friday, 15th Oct.,04 at 8.30 a.m. Ophthalmic Case Presentation by Dr.M.Uprendran
Monday, 18th Oct.,04 at 12.30 p.m. ECG Interpretation by Dr.H.M. Dunn
Tuesday, 19th Oct.,04 at 12.45 p.m. Inflammatory Bowel Disease by Dr.C.Steele
Wednesday, 20th Oct.,04 at 12.30 p.m. Management of Chronic Pain by Dr.C.O'Hare
Wednesday, 20th Oct.,04 at 12.30 p.m. Ophthalmic Journal Club by Mr. P.Hassett
Thursday, 21st Oct.,04 at 12.45 p.m. Pulmonary Function Tests by Dr.M.McCloskey
Thursday, 21st Oct.,04 at 4.00 p.m. MRCP Part 2 Clinical Teaching by Dr.J.F.McCarthy
Friday, 22nd Oct.,04 at 8.30 a.m. Ophthalmic Case Presentation by Dr.M.Williams
Friday, 22nd Oct.,04 at 1200 Noon Paediatric Clinical Teaching
Monday, 25th Oct.,04 at 12.30 p.m. ECG Interpretation by Dr.H.M.Dunn (RR5)
Tuesday, 26th Oct.,04 at 12.45 p.m. Vasculitis/Acute Cutaneous Emergencies by Dr.R.A.Fulton

Daily	Post-take SHO Ward Rounds	
Weekly	MRCP Teaching Ward Rounds	
Weekly	SHO teaching	
Monthly	different week days	Rolling Audit programme comprising A & E, Surgeons, Orthopaedics, Radiology and Anaesthetics
Monthly	different week days	E.N.T. Audit Meeting

Monthly at 7.30 p.m. Postgraduate Clinical Evening Meeting
Half yearly at 2.00 p.m. Regional Ophthalmic Meeting
Half yearly at 2.00 a.m. Major Trauma Training
Half yearly at 10.00 a.m. Regional Oral Surgery Meeting
Tuesday, 5th April, 2005, at 12.45 p.m. The Medical Division's Audit Meeting by Dr.R.A.Fulton "Crest Guidelines on Cellulitis
Wednesday, 6th April, 05, at 12.30 p.m. Disability Assessment by Mrs.H.Coates
Thursday, 7th April, 05 at 12.45 p.m. Antimicrobial Formulary by Ms.C.Gormley
Tuesday, 12th April,05, at 12.45 p.m. Management of Rectal Cancer by Mr.R.Gilliland
Wednesday, 13th April,05 at 12.30 p.m. Practical Issues associated with Insulin by Mrs.S.McConnell
Wednesday, 13th April,05 at 2.00 p.m. Cardiology/Lipid Symposium
Thursday, 14th April,05 at 12.45 p.m. Case Presentation by Dr.A.O'Neill
Monday, 18th April,05 at 12.30 p.m. Ophthalmic Case Presentation by Dr.S.Nabili
Tuesday, 19th April,05 at 12.45 p.m. Radiology for Acute Medical Emergencies by Dr.P.R.Jackson
Wednesday, 20th April,05, at 12.30 p.m. Ophthalmic Journal Club by Mr.P.Hassett
Thursday, 21st April,05, at 12.45 p.m. Assisted Ventilation on the Wards by Dr.M.Kelly
Monday, 25th April,05 at 12.30 p.m. Ophthalmic Case Presentation by Dr.M.Lagan
Tuesday, 26th April,05 at 12.45 p.m. Role of Minerals in Blood Pressure Regulation by Dr.David McCarron, Professor at the University of California
Wednesday, 27th April,05, at 12.30 p.m. Ophthalmic Case Presentation by Mr.D.Mulholland
Thursday, 28th April,05, at 12.45 p.m. Electrolyte Disturbance by Dr.M.O'Kane
Friday, 29th April,05 at 1.00 p.m. Neurology Teaching by Dr.M.McCarron
Tuesday, 3rd May,05 at 12.30 p.m. Medical Grand Round – Cholesterol Deficiency and Vascular Disease by Dr.W.Dickey
Medical Division's Audit Meeting – Audit of suspected non-ST elevation infarction in compliance with ESC Guidelines by Dr.A.Cheema
Wednesday, 4th May,05 at 12.30 p.m. Ophthalmic Journal Club by Mrs.R.Brennan

Neil Corrigan - Consultant

From: brian morrow [brian [redacted]
Sent: 08 July 2005 21:52
To: Neil Corrigan - Consultant
Cc: [redacted] - Medical Admin
Subject: Lecture on Fluid balance

FLUID.PPT

Dear Neil,

I enclose copy of lecture for ADULT fluid balance. I will be in Oz for a year so you and esme may need to find someoen esle to give it.

All the best
Brian

PS if it doesn't download send me your home e mail. You may need to import it before downloading.

Management of Fluid Balance

Dr Brian C Morrow
Consultant in Anaesthesia and Intensive Care

Management of Fluid Balance

- "Ignorance of effects of hyponatraemia after surgery is widespread and damaging" *BMJ 1999;318:1363-4*
- Common in elderly females on thiazides
- 20% with symptomatic hyponatramia develop brain damage/die=10-15,000 cases/year in USA

Content

- Physiology
- Requirements
- Special circumstances

Fluids-Physiology

- Water 60% body weight in adult male but decreased in females and elderly
- 45L water-15L ECF/6L plasma/24L ICF
- Organs 84% water content
- ECF Na^+ 135-145mmol/L, K^+ 3.5-5.0 mmol/L, Mg^{2+} 0.75mmol/L
- ICF opposite

Fluids-body compartments [mmol/L]

- Replace what is lost
- Gastric-high H^+ (~65) and Cl^- (140) and moderate Na^+ (50) and K^+ (15)
- Other upper GI secretions similar to ECF
- Diarrhoea-Na^+ (30-140), K^+ (30-70) and HCO^{3-} (20-80)
- K^+ conserved at kidney at expense of Mg^{2+} excretion

Physiology in stressed patients

- Sodium and water retention from cortisol/aldosterone/ADH/sympathetic tone results in more concentrated urine
- Fasting patients, fluid shifts of ECF, pyrexia (^x10%/°C)

Fluids

- 'Wet' patients- h/o cardiac problems or iatrogenic
- 'Dry' patients-all the rest!
- In resuscitation 'wet at first with dry spells later'
- If in doubt err on side of too much fluids

Assessment of Fluid Balance

- Past History of A/N/V/D
- Past Medical History
- Nature of operation-3rd space losses/epidural analgesia
- Check drains and concealed losses
- Examine patient!

Assessment of Fluid Balance (2)

- CNS-confusion
- CVS-CCF/oedema?/tachycardia/low CVP-JVP/low BP
- Respiratory-tachypnoea
- Renal-urine output <0.5ml/kg/h and dark colour and low Na^+/high osmolality
- Skin-loss of turgor/dry/poor access
- Tongue

Assessment of Fluid Balance (3) Investigations

- Full Blood Picture
- Urea and Electrolytes
- ABGs-mixed picture
- CXR

Normal Fluid and Electrolyte Requirements in 70Kg male

- Water 1.5 ml/kg/h
- Na^+ 1-2 mmol/kg/d
- K^+ 1 mmol/kg/d
- Mg^{2+} 15 mmol/d - 5G(=10mmol)/1L bag
- Daily 2.5-4 L
- Daily 70-200 mmol
- Daily 70-100 mmol (up to 10 mmol/h CVP line)

Average requirements

- 150mmol Sodium
- 60mmol KCl (up to 200mmol/d)
- -Magnesium (5g in 500ml saline)
- Phosphate 15mmol/day
- 2-3L/day
- Post-op patients day 1 use Hartmans
- Day 2 alternate Hartmans and Soltn 18

Fluid Management

- Resuscitation 1-2L Hartmans+/-colloid
- -avoid Dextrose-containing fluids
- Patient unresponsive to fluids
- Consider sepsis
- -Abdomen or Chest
- ?shock from other causes

Tricks of the trade!

- Hairy patients
- Size of cannula and LA/EMLA
- Pre-op elective Sx-NOT REQUIRED
- Use for taking of bloods
- Flushing of cannula and charting
- Confused patients/poor access-clave connectors
- ?Tissued
- Charting of fluids pm to pm

Neil Corrigan - Consultant

From: Maurice O'Kane - Consultant
Sent: 08 July 2005 18:29
To: Neil Corrigan - Consultant
Subject: hYPONATRAEMIA

Neil

I have given talks over the years on electrolyte balance in adult patients. I would have covered hyponatraemia but only in adults. I never at any stage covered hyponatraemia or fluid management in paediatric patients since I have no experience whatever in this. The adult talk would have covered the investigation of hyponatraemia ie distinguishing SIADH from other causes, treatment and risk of pontine myelinolysis with over rapid correction. I have electronic versions of the more recent talks.

Given that my talks referred onlt to adult patients do you still want copies of these?

regards

Maurice

Ref. 2

REF 2

REF. 2.

Fatal case of hyponatraemia in Altnagelvin Hospital

- A healthy child who should have had an uneventful recovery died under our care
- The cause of death was brain swelling brought about by a condition called hyponatraemia (low sodium)
- This was caused by a very rare idiosyncratic reaction to surgery and concomitant therapy with fluid having a low sodium content
- Such a case has happened before in N Ireland, and although there are cases in the literature, this was not generally known. This condition occurs more commonly in children and particularly girls
- The practices in Altnagelvin were the same as the majority of other hospitals treating children
- If we had known, it could probably have been avoided!

Following the death a critical incident investigation was commenced and other hospitals immediately alerted (13.6.01)

Action

Notification of Chief Medical Officer

background information on hyponatraemia

revision of fluid policy

information to medical & nursing staff

revision of charting fluid balance

Meeting with the family

apology and condolences

explanation of the events

a promise to rectify the procedures, which were common practice but which had allowed this tragedy to occur

CHILD AT RISK OF HYPONATRAEMIA RECEIVING PRESCRIBED FLUIDS

INTRODUCTION

- **Any child on IV fluids or oral rehydration is potentially at risk of hyponatraemia.**
- Hyponatraemia is potentially extremely serious, a rapid fall in sodium leading to cerebral oedema, seizures and death. Warning signs of hyponatraemia may be non-specific and include nausea, malaise and headache.
- Hyponatraemia most often reflects failure to excrete water. Stress, pain and nausea are all potent stimulators of anti-diuretic hormone (ADH), which inhibits water excretion.
- Complications of hyponatraemia most often occur due to the administration of excess or inappropriate fluid to a sick child, usually intravenously.
- Hyponatraemia may also occur in a child receiving excess or inappropriate oral rehydration fluids.
- Hyponatraemia can occur in a variety of clinical situations, even in a child who is not overtly "sick". Particular risks include:
  - Post-operative patients
  - CNS injuries
  - Bronchiolitis
  - Burns
  - Vomiting

BASELINE ASSESSMENT

Before starting IV fluids, the following must be measured and recorded:

- **Weight:** accurately in kg. [In a bed-bound child use best estimate.] Plot on centile chart or refer to normal range.
- **U&Es:** take serum sodium into consideration.

FLUID REQUIREMENTS

Fluid needs should be assessed by a doctor competent in determining a child's fluid requirement. Accurate calculation is essential and includes:

Maintenance Fluid

- 100mls/kg for first 10kg body wt, plus
- 50mls/kg for the next 10kg, plus
- 20mls/kg for each kg thereafter, up to max of 70kg

[This provides the total 24 hr calculation; divide by 24 to get the mls/hr].

Replacement Fluid

- Must always be considered and prescribed separately.
- Must reflect fluid loss in both volume and composition (lab analysis of the sodium content of fluid loss may be helpful).

CHOICE OF FLUID

- **Maintenance fluids** must in all instances be dictated by the anticipated sodium and potassium requirements. The glucose requirements, particularly of very young children, must also be met.
- **Replacement fluids** must reflect fluid lost. In most situations this implies a minimum sodium content of 130mmol/l.
- **When resuscitating** a child with clinical signs of shock, if a decision is made to administer a crystalloid, normal (0.9%) saline is an appropriate choice, while awaiting the serum sodium.
- The composition of oral rehydration fluids should also be carefully considered in light of the U&E analysis.

Hyponatraemia may occur in any child receiving any IV fluids or oral rehydration. Vigilance is needed for all children receiving fluids.

MONITOR

- **Clinical state:** including hydrational status. Pain, vomiting and general well-being should be documented.
- **Fluid balance:** must be assessed at least every 12 hours by an experienced member of clinical staff.

  Intake: All oral fluids (including medicines) must be recorded and IV intake reduced by equivalent amount.

  Output: Measure and record all losses (urine, vomiting, diarrhoea, etc.) as accurately as possible.

  If a child still needs prescribed fluids after 12 hours of starting, their requirements should be reassessed by a senior member of medical staff.
- **Biochemistry:** Blood sampling for U&E is essential at least once a day - more often if there are significant fluid losses or if clinical course is not as expected.

  The rate at which sodium falls is as important as the plasma level. A sodium that falls quickly may be accompanied by rapid fluid shifts with major clinical consequences.

  Consider using an indwelling heparinised cannula to facilitate repeat U&Es.

  Do not take samples from the same limb as the IV infusion.

  Capillary samples are adequate if venous sampling is not practical.

  Urine osmolarity/sodium: Very useful in hyponatraemia. Compare to plasma osmolarity and consult a senior Paediatrician or a Chemical Pathologist in interpreting results.

SEEK ADVICE

Advice and clinical input should be obtained from a senior member of medical staff, for example a Consultant Paediatrician, Consultant Anaesthetist or Consultant Chemical Pathologist

- In the event of problems that cannot be resolved locally, help should be sought from Consultant Paediatricians/ Anaesthetists at the PICU, RBHSC.

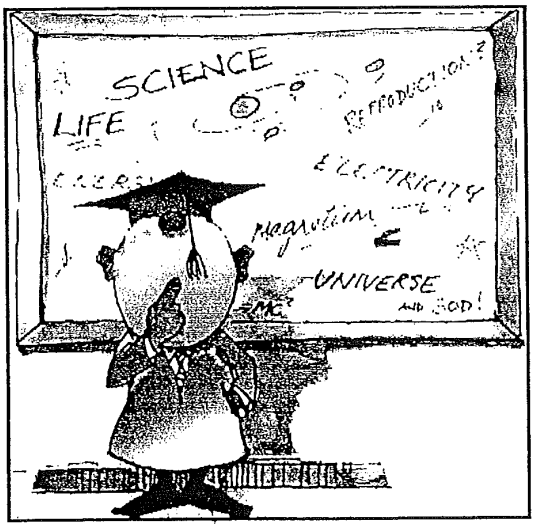
The Department Of Health, Social Services And Public Safety. Guidance is also available on the Departmental website: www.dhsspsni.gov.uk

Fluid Balance

1. Renal Physiology made easy
2. A case report of Hyponatraemia
3. Recommendations for Fluid Therapy in Children (*& now Adults*)

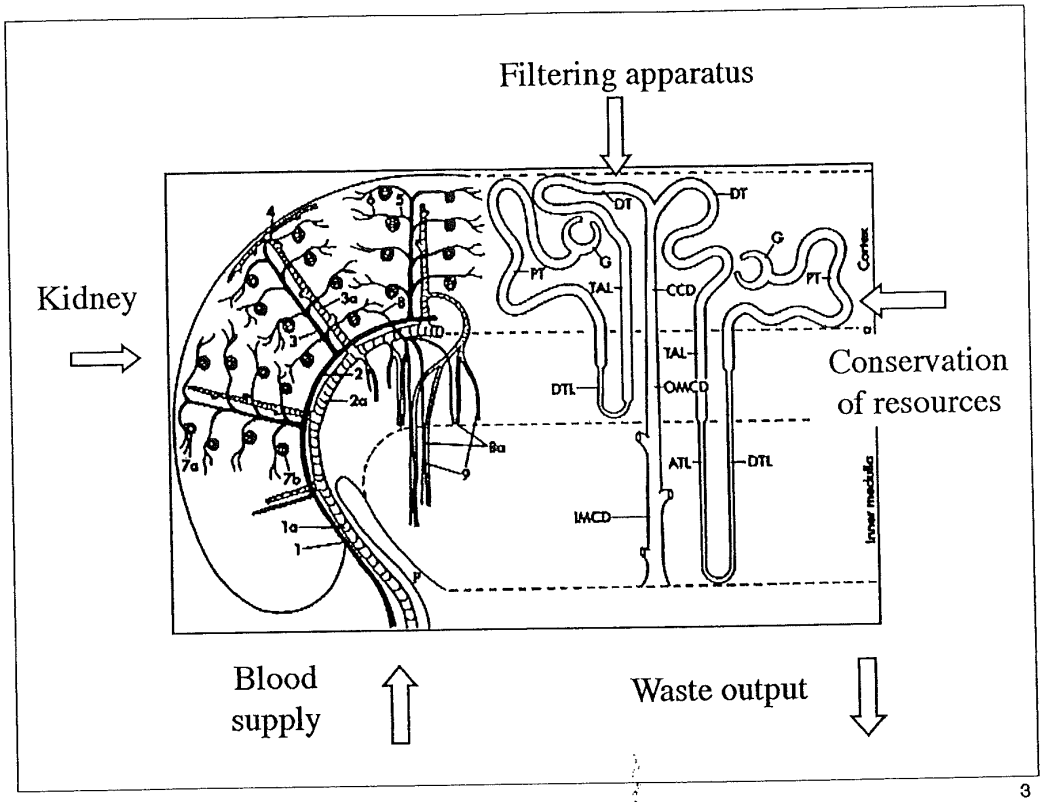
1

Renal Physiology - is it complicated?

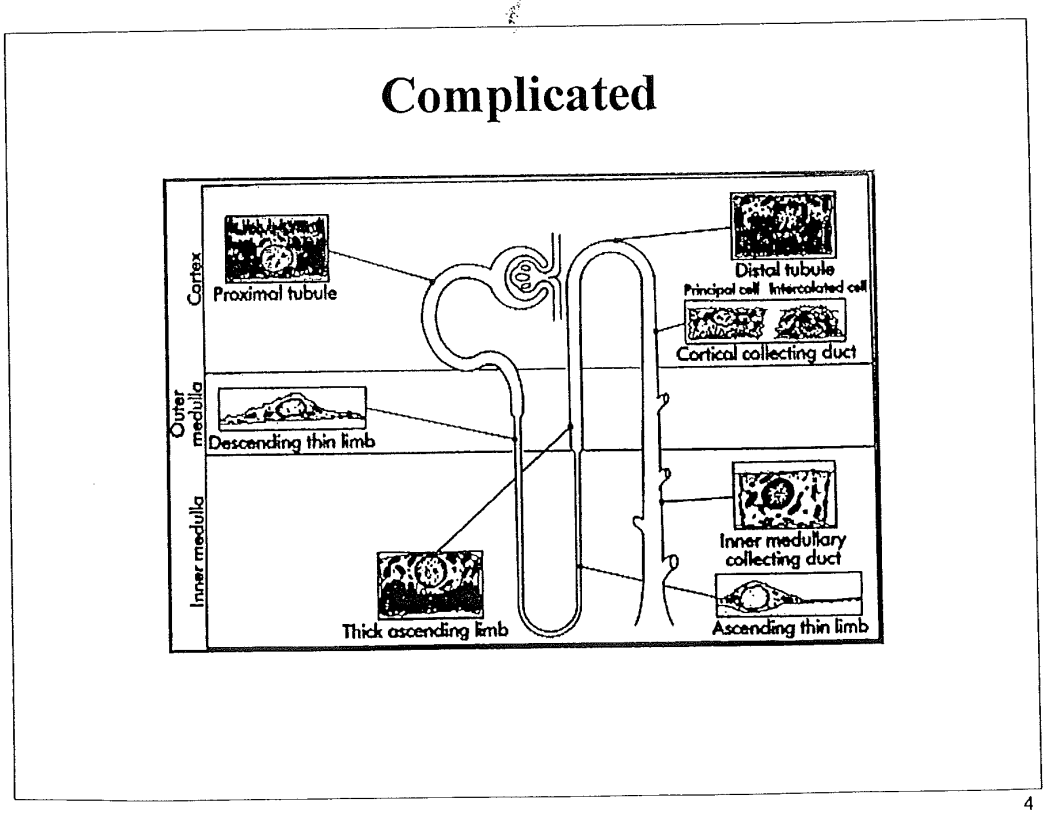


Yes it is !

2

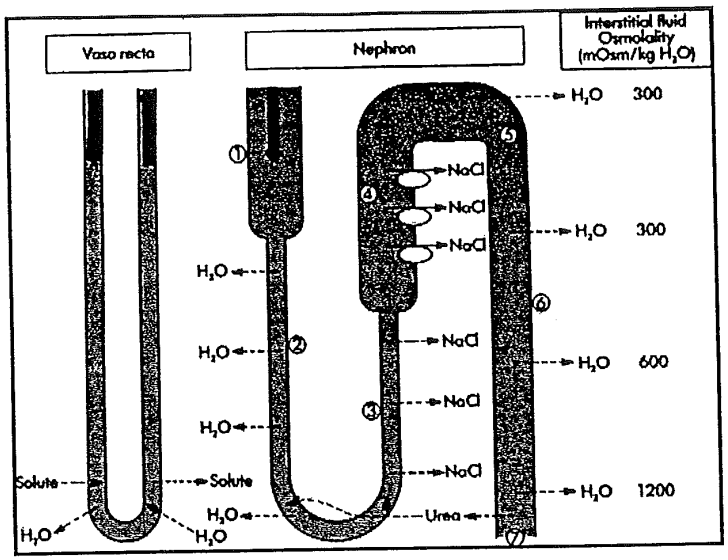

Filtering apparatus
Kidney
Conservation of resources
Blood supply
Waste output
DT
PT
TAL
CCD
OMCD
DTL
ATL
IMCD
Cortex
Inner medulla

3


Complicated
Cortex
Outer medulla
Inner medulla
Proximal tubule
Distal tubule
Principal cell
Intercalated cell
Cortical collecting duct
Descending thin limb
Inner medullary collecting duct
Thick ascending limb
Ascending thin limb

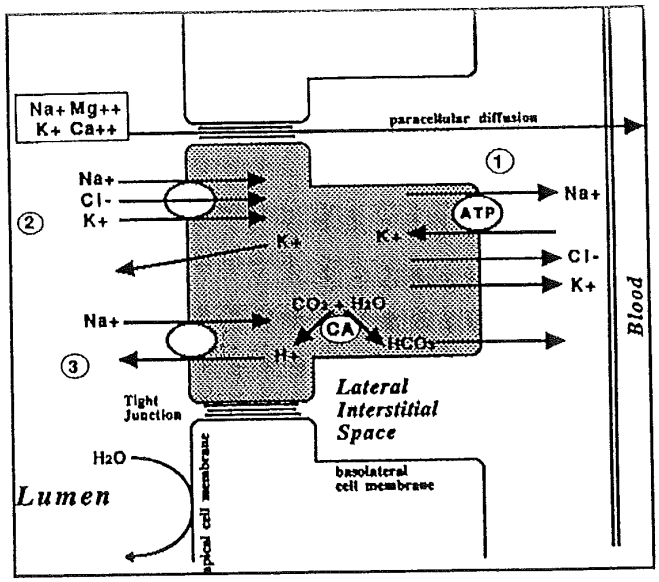
4

Very Complicated

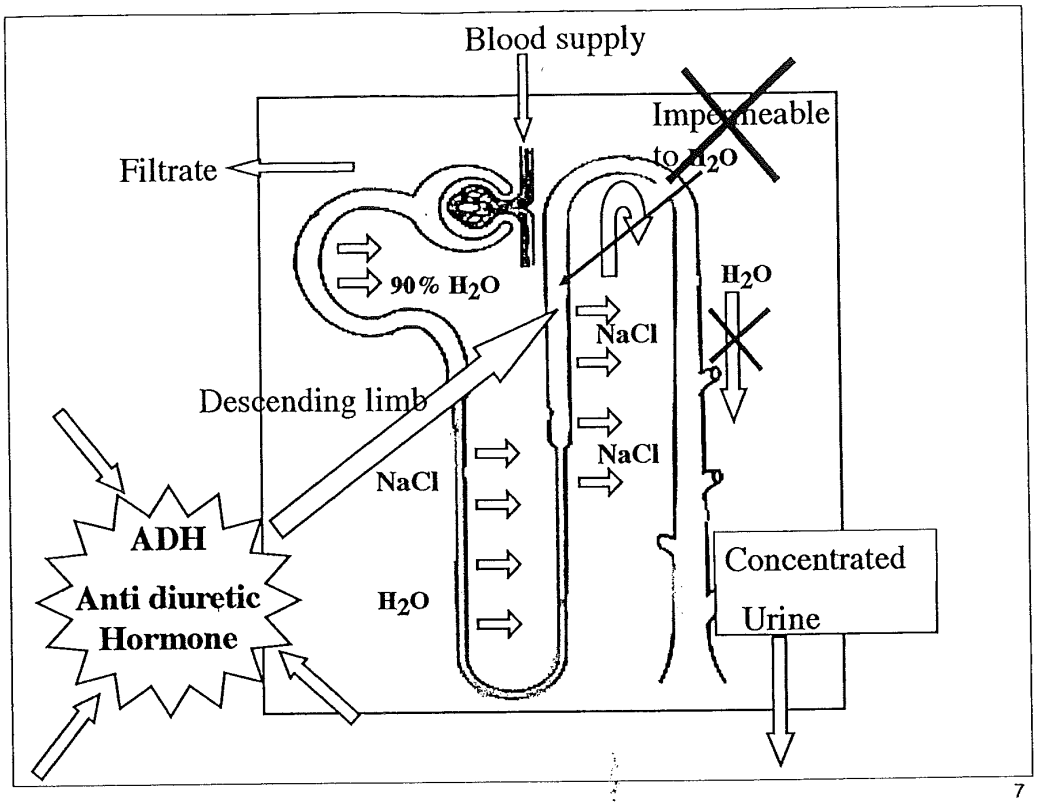


5

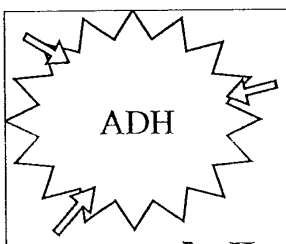
Unbelievably Complicated



6



7



At risk patients

- Hypernatraemia / hyperosmolality
- Dehydration / shock
- Stress, nausea, pain, anxiety
- Drugs
- CNS disease
- Metabolic / Endocrine disorders

Just about every surgical patient!

8

Fatal Hyponatraemia following surgery

A case report

9

- 9yr old girl. Weight 25kg
- Admitted via A&E 20.00hrs
- Diagnosis: "Suspected appendicitis"
- Treated with intravenous Morphine and admitted to ward 6

Na 137, K 3.6, Urea 4.8, Glucose 7.2

- Seen by Anaesthetist

- IV fluids prescribed (Hartmann's 80mls / hr)
- IV fluids changed to No.18 solution 80ml / hr
  (This was the "default solution" in paediatrics)

10

PARENTERAL NUTRITION FLUIDS PRESCRIPTION SHEET

	Amount (ml)	TYPE OF FLUID	NAME and AMOUNT of ADDITIVES	Rate ml/hour	Type of pump	Serial number of pump	Prescribed by (Signature)	Batch No. Date of Expiry	Time erected + erected by (Signature)
1	1 litre 80ml/Hour	No 18	——	80ml/Hr	1100	11445	R Mark	07C1908 2/2000	10.15a.m. D.R. Hall 1345
2									
3	~~80 ml/hour~~	~~No 18~~	~~——~~	~~80ml/Hr~~	~~1100~~	~~11445~~	~~R Mark~~	~~07C1908 2/2000~~	~~D.R. Hall 1345~~
4									
5									
6									
7									
8									
9									
10									

11

ALTNAGELVIN HOSPITAL NEO NATAL INTENSIVE CARE UNIT
FLUID BALANCE FOR I.V. FLUIDS

Name ..... Date 7/6/01 Wt ..... Age 8 yrs FB. 48

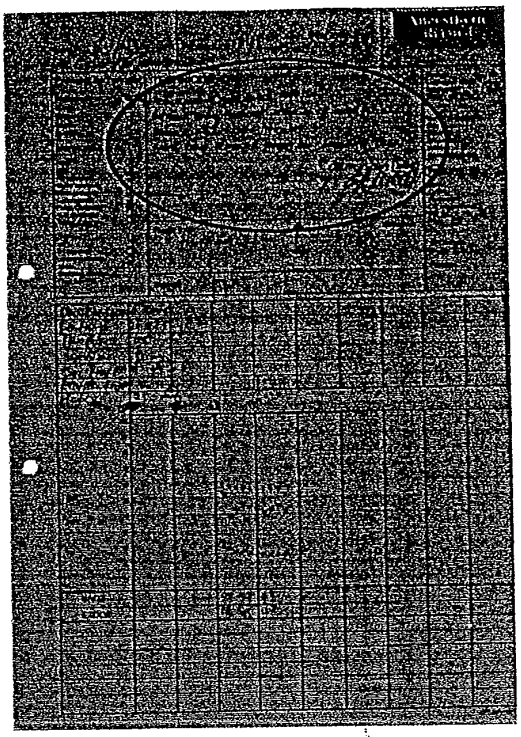
	INPUT												OUTPUT										
	INTRAVENOUS								ORAL														
SPECIFY FLUID	1		2		3		4		5		6		ASPIRATE	VOMIT	URINE		STOOLS	LAB SUGAR	MISCOE	Signature	I.V. SITE	Comment	Signature
TIME	Amt	Total	Amt	Total	Amt	Total	Amt	Total	Amt	Total	Amt	Total	Amt	Amt	Amt	Total	Total						
08.00																							
09.00																							
10.00																							
11.00																							
12.00																							
13.00																							
14.00																							
15.00																							
16.00																							
17.00																							
18.00																							
19.00																							
20.00	No 18 Q																						
21.00	80ml/hr																						
22.00	150																						
23.00	150	40																					
24.00	At Theatre																						
01.00																							
02.00	150	140																					
03.00	150	220																					
04.00	150	300																					
05.00	150	380																					
06.00	150	460																					
07.00	150	540																					
	Intravenous Total																						
	Oral Total																						
	TOTAL INTAKE												TOTAL OUTPUT										

IV fluids disconnected for transfer to theatre

200 mls Hartmann's intraoperatively

IV fluids disconnected for transfer to ward

12



13

8/6/01

ALTHAGELVIN HOSPITAL NEO NATAL INTENSIVE CARE UNIT
FLUID BALANCE FOR I.V. FLUIDS

Name ..... Date 7/8/01 Wt ..... Age 9yrs ..... FB. 48

	INPUT												OUTPUT											
SPECIFY FLUID	NEO M ct 90+HW				INTRAVENOUS				ORAL				ASPIRATE	VOMIT	URINE		STOOLS	LAB SUGAR	HAEMOCUE	Signature	I.V. SITE	Comments	Signature
	1		2		3		4		5		6													
TIME	Amt	Total	Amt	Total	Amt	Total	Amt	Total	Amt	Total	Amt	Total	Amt	Amt	Amt	Total	Total							
08 00	150	150																						
09 00	150	300																						
10 00	150	450																						
11 00	150	600																						
12 00	150	750																						
13 00	150	900																						
14 00	150	1050																						
15 00	150	1200																						
16 00	150	1350																						
17 00	150	1500																						
18 00	150																							
19 00	150	1650																						
20 00	150	1800																						
21 00	150	1950																						
22 00	150	2100																						
23 00	150	2250																						
24 00	150	2400																						
01 00	150	2550																						
02 00	150	2700																						
03 00	150	2850																						
04 00	150	3000																						
05 00																								
06 00																								
07 00																								

Fluids continued at 80mls /hr

Intravenous Total	
Oral Total	
TOTAL INTAKE	

Urine Total	
Other Total	
TOTAL OUTPUT	

14

History of events

- Returned to ward 02.00hrs. 8/6/01
- Seen by surgeons in am. Patient was well and being nursed by her father. Out of bed and "colouring in"
- Several episodes of vomiting
- "Seen" by several doctors throughout the day and anti emetics prescribed
- No notes and no U&E requested
- Headache at 21.30hrs. Treated with paracetamol
- Settled and sleeping 23.30hrs

15

History continued

- Further episode of vomiting 00.30hrs
- Found fitting at 03.00hrs
- Seen and treated by SHO in Paediatrics
- Check U&E

Na 118, K 3, Mg 0.59, Urea 2.1, Glucose 11

- Treated with benzodiazepines to control seizures 03.30
- Consultant paediatrician called 04.30
- Anaesthetic Registrar contacted because of desaturation
- 04.45 sudden deterioration. Anaesthetist fast bleeped.
- Respiratory arrest
- Intubated and ventilated

16

CT scan & Transfer to RBHSC

- CT scan showed cerebral oedema and suspected subarachnoid bleed. 05.30hrs
- Transferred to ICU
- Re scanned at request of Neurosurgeons
- Transfer to Belfast RBHSC 11.00hrs

Diagnosis: Brain Stem death

Parents told that " the wrong fluid had been given"

(Allegedly)

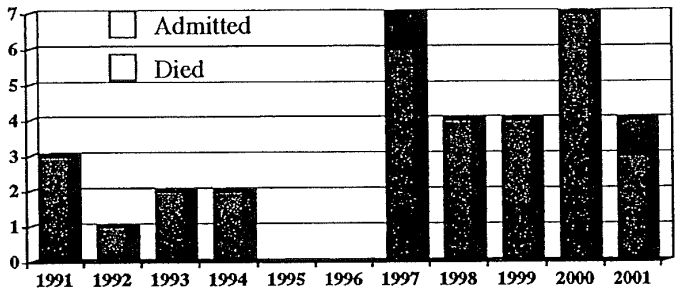
17

Background

- Incidence in N Ireland
- Review of literature
- Intravenous fluids & Sodium content
- Recommendations following meeting with Department of Health

18

Incidence of Hyponatraemia RBHSC



19

History

The traditional view held for 40 yrs…

- Paediatric fluids should be hypotonic
- Children cannot handle a salt load
- Children must be given sugar

20

Evolution of the problem

- Standard solution was No.18. Isotonic containing 30 mmols/l Sodium, provided the correct amount for the day.
- Free water is produced as glucose metabolised, especially by the sick child.
- ADH /Argenine-Vasopressin secretion adds to the problem by causing water retention and excretion of small volumes of hypertonic urine.
- A fluid challenge may be tried to improve the "poor urinary output" (often with hypotonic fluids)
- Large shifts of water lead to tissue and more importantly brain cell swelling.

21

Study findings

Halberthal et Al - BMJ 2001;322:780-2

- 23 patients with acute hyponatraemia
- Median age 5years (range 1mth - 21yrs)
- 13 (57%) were postoperative.
- 18 (78%) developed seizures
- 5 (22%) died
- 1 severe neurological deficit

22

Study findings

Halberthal et Al - BMJ 2001;322:780-2

- 23 patients studied
- All received hypotonic fluids
- All had plasma Na < 140 mmols/l pre- treatment
- 16 (70%) received excessive maintenance fluids

23

Our Case

- Received hypotonic fluids
- Had a preoperative Na < 140 mmols/l
- Received excessive maintenance fluids

- 25kgs = 65 mls/hr
- Patient prescribed 80 mls/hr

24

Study findings - conclusions

Halberthal et Al BML 2001;322:780-2

- Avoid hypotonic solutions if Na < 138 mmols/l
- Measurement of Na mandatory prior to IV therapy
- Hypotonic solutions only indicated if Na > 145 mmols/l
- Check plasma Na if child receives more than 30mls/kg fluids

25

Measure the body weight

- Measurement should be in Kg
-
- Estimate weight using formula
  - **(Age + 4) x 2**
  - **i.e. a 2 yr old = 12kg**
-
- Plot on a centile chart as a cross check

26

Maintenance fluids

- For first 10 kgs body weight give 4 mls/kg/hr
  - 40 mls /hr for a 10 kg infant
- For second 10 kgs body weight give 2mls/kg/hr
  - 40mls + 20 mls = 60mls/hr for a 20kg child
- For each subsequent kg give 1 ml/kg/hr
  - 60mls + 10 mls = 70 mls/hr for a 30kg child

24hr requirements: **100mls/kg for first 10kg**
50 mls/kg for next 10kg
20mls/kg for each kg thereafter

27

Sodium content

- 0.18% NaCl in 4% glucose contains 30 mmols/l
- 0.45% NaCl in 2.5% glucose contains 75 mmols/l
- 0.9% NaCl contains 150 mmols/l Normal Saline
- Hartmann's contains 130 mmols/l

28

Recommendations

- Body weight measured or carefully estimated
- Total fluid not to exceed the maintenance
  - Once replacement has been given
- Maintenance should be at least 0.45% NaCl in 2.5% glucose
- Measurement of urine output, or serial body weight, is mandatory and should be recorded daily
- Baseline and regular measurement of blood biochemistry (Na & glucose) at least daily
- Do not use glucose containing solutions for fluid bolus or resuscitation fluids

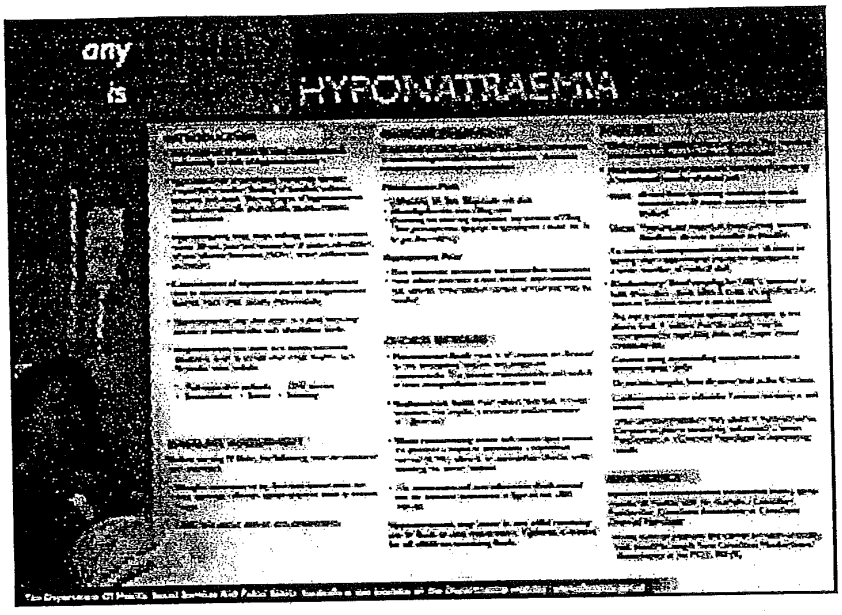
29

A Change of Practice

Not just a change of fluid

- Regular electrolyte & Blood sugar checks
  - This means blood tests on children
  - What about "short cases" who receive fluids ?
- A review of fluid balance at 12 hrs
  - Why is this patient still requiring fluids?
- Avoidance of No.18 solution
  - Use at least 0.45% NaCl
  - Perhaps only use 0.9%NaCl or Hartmann's ?

30



31

INTRAVENOUS FLUID PRESCRIPTION CHART FOR POST OPERATIVE CHILDREN

Date:____/ _____ / 20___

1 BASELINE INFORMATION

(AFFIX LABEL)	AGE	WEIGHT	HOURLY RATE (ml/hr)*	VOLUME OF LOSSES
NAME Hosp No Date of Birth			TOTAL = ml/hr	

2 FLUID BOLUSES

	VOLUME (mls)	FLUID TYPE	RATE	PRESCRIBED BY	START TIME	ERECTED BY (NAME)	SIGNED & CHECKED	BATCH ID & EXPIRY	PUMP TYPE/ SERIAL No
A		Hartmanns solution							

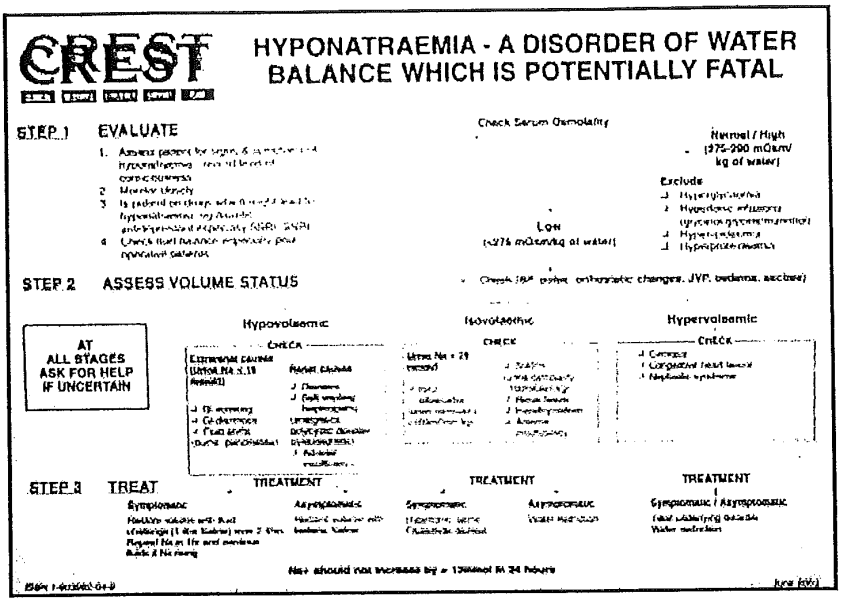
3 MAINTENANCE FOR FIRST TWELVE HOURS

	ELECTROLYTES Sample time ___ hrs	FLUID TYPE & Volume Delete if non applicable	RATE* (ml/hr)	START TIME	PRESCRIBED BY	ERECTED & CHECKED	BATCH ID & EXPIRY	CANCELLED BY (Signature/Time)	PUMP TYPE/SERIAL No
B	Sodium = Potassium = Chloride = Urea =	1L Hartmanns Solution 1L 0.45% Saline & 2.5% glucose							

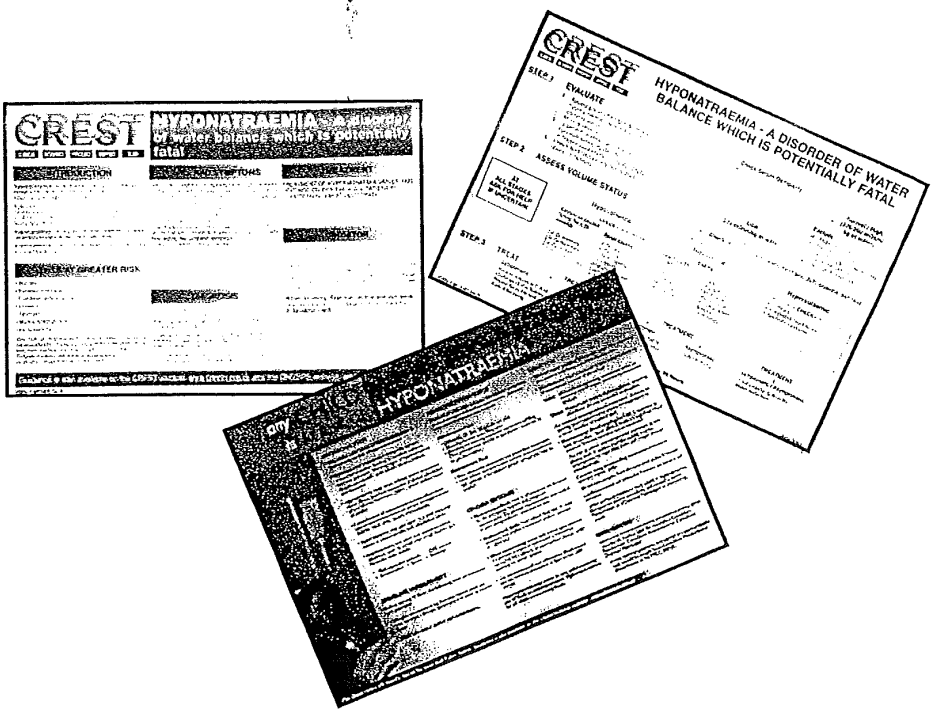
4 MAINTENANCE FOR SECOND TWELVE HOURS

	ELECTROLYTES Sample time ___ hrs	FLUID TYPE & Volume Delete if non applicable	RATE* (ml/hr)	START TIME	PRESCRIBED BY	ERECTED & CHECKED	BATCH ID & EXPIRY	CANCELLED BY (Signature/Time)	PUMP TYPE/SERIAL No
C	Sodium = Potassium = Chloride = Urea =	1L Hartmanns Solution 1L 0.45% Saline & 2.5% glucose							

32


CREST
HYPONATRAEMIA - A DISORDER OF WATER BALANCE WHICH IS POTENTIALLY FATAL
STEP 1 EVALUATE
Check Serum Osmolality
Normal / High
(275-290 mOsm/kg of water)
Low
(<275 mOsm/kg of water)
Exclude
STEP 2 ASSESS VOLUME STATUS
Hypovolaemic
Normovolaemic
Hypervolaemic
AT ALL STAGES ASK FOR HELP IF UNCERTAIN
CHECK
STEP 3 TREAT
TREATMENT
Symptomatic
Asymptomatic
Symptomatic / Asymptomatic

33


CREST
HYPONATRAEMIA - A DISORDER OF WATER BALANCE WHICH IS POTENTIALLY FATAL
HYPONATRAEMIA

34

Ref. 3

Ref. 3

Prescribing Medication, Fluids and Pharmacy issues

Prescribing:

Prescribing medication is one of the most important duties as a junior doctor, and mistakes in this area can be disastrous for the patient, and lay you open to litigation. The following general guidelines may help, but remember to ask a senior colleague and consult the British National Formulary (BNF) if you are in doubt.

Accurate and safe prescribing[11]

Your prescriptions must be accurate and legible. You should read and put into practice the advice given in the BNF 'General Guidelines'. In general: -

(i) Write ***legibly*** and avoid abbreviations. Full signatures are required, not initials.

(ii) Avoid using ***proprietary names*** where possible, and use ***metric units*** without decimal points where possible (Digoxin 125 micrograms rather than 0.125mg). Microgram should be written in full to avoid confusion.

(iii) Check drug doses, dose intervals and route with great care.

(iv) Check for drug sensitivities, record clearly in red.

(v) When re-writing a kardex, use the date when the prescription was ***first initiated.*** Cancel the prescriptions on the old sheet, using a single straight line through each entry, dated and initialled.

(vi) When a patient is admitted, take care to obtain details of their previous prescription and continue drugs at the appropriate dosage where necessary.

(vii) When initiating a new drug you have little experience with, ask a senior colleague before making a major change in therapy. You may also wish to ask the advice of the Pharmacy department who can research the literature on side effects and interactions of new or less commonly used drugs. Always record the reasons for initiating therapy in the medical notes and inform the nursing staff. Inform the General Practitioner of these indications and of how long you intend the patient to take the medication. The patient should also be fully informed about their medication, and where the drug is particularly toxic, you should provide specific patient information and record that you have done so.

(viii) Take particular care with ***calculations*** of drug dosage (by age, height or weight). You must record clearly the patient's height and weight and the calculation you have performed to arrive at the dose. When you find yourself giving more than three parenteral dosage units (i.e. three ampoules or vials), check first with the Pharmacy department.

Adverse reactions:

It is vitally important that you obtain a history of adverse reactions to drugs when a patient is admitted and when a new drug is prescribed, especially penicillin related drugs. Record the nature of the adverse reaction to give some idea of its severity.

Some adverse reactions (to new drugs, or severe reactions to established drugs) must be reported to the Committee on Safety of Medicines. Please refer to the appropriate section in BNF for guidelines.

Hospital Formulary:[12]

A hospital formulary should have been given to you on taking up post. These guidelines are based on good practice and revised frequently, so you should use them as often as possible. Advice on the management of infections can be obtained from the Consultant Microbiologist.

Medication on Discharge:

Take care to ensure that your prescription is accurate and legible, and that the patient is given instruction on any new treatments. Do not prescribe night sedation that was intended for hospital stay only.

Anti-Coagulation:

If your patient has been commenced on anti-coagulants, you ***must*** fill out the form for the anti-coagulant clinic and contact the clinic to arrange the first appointment. The form should include the diagnosis, the target INR, and the proposed duration of anti-coagulation. Patients should be informed verbally and in writing of the nature, adverse effects and potential interactions of their therapy. An information leaflet is available, and this must be given to the patient prior to discharge from hospital.

Pharmacy: A valuable Information service:

The Pharmacists are keen to help you and give advice where you are unsure of dosage etc. They will also perform literature searches to investigate possible adverse reactions to medication.

The Pharmacy has a Medicines Help line [redacted], or [redacted]) for the benefit of patients

Prescribing IV fluids:

Prescribing IV fluids is a potentially hazardous duty. Close attention should be given to the type and volumes of intravenous fluids required and any related ward policies. For example, the default solution for paediatric patients is now half strength saline in 2.5% dextrose. This is to reduce the risk of ISADH related hyponatraemia that can be fatal. **If you are unsure of your fluid prescribing seek senior advice.**

In the event of a sharps injury you are required to notify your employer by completion of an accident form and must seek medical assessment and treatment through the OHD (Accident & Emergency out of hours). Please note that it is hospital policy to test source blood for Hepatitis B, C and HIV. You may also be asked to take blood from another member of staff who has sustained a sharps injury. Verbal consent should be obtained from the patient and the conversation noted in the medical record. The purpose of the test should be explained, together with the fact that treatment will be offered if an abnormal test results. The patient can be reassured that life insurance will not be affected as long as the test is negative.

If you consider that your health is or may be affecting your work you should make contact with the OHD. You must seek the views of the Occupational Physician if you may be at risk of transmitting H.I.V to a patient.

The most significant workplace difficulty experienced by medical practitioners in their initial years after qualification is depressed mood due to the pressure of coping with the challenges of work combined with social isolation. The Consultant in Occupational Health welcomes direct contact from staff (at his office [redacted] or at home [redacted]). Alternatively the ***B.M.A*** has established a counselling service for doctors (tel. [redacted]). Another source of help is the ***National Counselling service for Sick Doctors*** ([redacted]: charged at local rates). This service is available 24 hours a day, 7 days a week. Calls are dealt with by doctors confidentially and, if wished, anonymously.

PRACTICAL ADVICE

Case note recording[8]

- All entries in case notes must be timed and dated. ***Entries must be easily legible and written in dark ink. Each entry should be signed and the name printed beneath the signature.*** Retrospective alterations to the notes should only be made in exceptional circumstances, and then must be signed and dated with the original entry legible, but scored out with a single line. Use only approved abbreviations, and above all avoid making derogatory comments about patients or other members of staff in the medical record. The entries and the signature ***must be legible***. The Medical Personnel Office will keep a registry of signatures for future reference.
- **History** taking: Where helpful information may be gained from a third party, e.g., witness to a "blackout", carer of an elderly or unconscious patient, this must be obtained and documented.
- The admitting doctor should give his impression at the end of writing up the case in the form of a ***differential diagnosis.***
- A **"Problem List"** should be formulated.
- Regular daily notes after admission should be made, documenting the ***progress*** of the patient's illness and how the results of investigations have confirmed or altered the differential diagnosis.
- The use of ancillary services should be noted.
- A ***record should be made of the content of discussions with the patient and relatives.***

- The arrangements and the indications for follow-up should form a summary at the end, together with clear documentation as to the therapy that is to be continued on discharge from hospital.
- All typed correspondence must be checked and signed by the doctor who dictated them. Any corrections should be made on all copies of the correspondence.

Discharge summaries

The hand-written summary should be sent with the patient with clear instructions to take it to the GP as soon as possible. ***This summary should be legible and accurate***: In routine cases consider ticking the section, which indicates that a typed discharge letter is not required. This can significantly reduce the medical and secretarial workload. Often a typed discharge summary is required and should be completed as soon as possible (ideally within 4 days). Discharge summaries should contain the following details:

- A concise summary of the reason for admission.
- The results of important investigations that enabled the diagnosis to be made.
- Diagnoses, with sufficient detail to permit accurate coding.
- Procedures, with sufficient detail to permit accurate coding
- Therapy to be continued after discharge.
- The G.P. must be informed how much information has been conveyed to the patient and how much to the relatives.
- A clear statement of follow-up arrangements.

Deliberate Self Harm

Psychiatric assessment is essential for everyone who has taken a definite overdose with deliberate intention of self-harm. This should be obtained prior to release from hospital if at all possible.

Discharge against medical advice

In some cases patients will leave the ward against medical advice. If a patient admitted with deliberate self-harm wishes to discharge himself "contrary to medical advice" then careful consideration of patients' mental state is important. If you feel that the patient has a serious psychiatric disorder with immediate risk of self-harm, you should consult the duty officer in Psychiatry in case 'formal detention' needs to be arranged (see below). In all other cases, if a patient is determined to leave "contrary to medical advice", you must ***detail in the notes your explanation of the risks involved*** and if the patient left in the company of a friend or relative. If such a patient refuses to sign the "CMA" form, witnesses to this effect should be obtained. ***You must contact the patient's General Practitioner*** (or locum) as soon as possible to inform them of the patient's departure. If a patient leaves the ward in a confused state, it is important to inform security and, if necessary, the police. Do not attempt to confront a patient who is acting violently: avoid direct eye contact and attempt to defuse the situation. Call security for assistance and report the incident.

Ref. 4

REF 4

APPENDIX

B

Fluid and electrolyte management

INTRODUCTION

Fluid and electrolyte management is an essential part of both the immediate and the ongoing care of all sick children. In this Appendix we will look at the following:

- Normal requirements.
- Dehydration.
- Diabetic ketoacidosis.
- Hypervolaemia (fluid overload).
- Specific electrolyte problems.

NORMAL REQUIREMENTS

Volume

Blood volume is about 100 ml/kg at birth, falling to about 80 ml/kg at one year. Total body water varies from just under 800 ml/kg in the neonate to about 600 ml/kg at one year, after this it varies little. Of this about two-thirds (400 ml/kg) is intracellular fluid, the rest being extracellular fluid. Thus initial expansion of vascular volume in a state of shock can be achieved with relatively small volumes of fluid: 20 ml/kg will usually suffice: However, this volume is only a fraction of that required to correct dehydration if the fluid has been lost from all body compartments; 20 ml/kg is 2% of body weight. Clinically, dehydration which is distributed across the fluid compartments rather than being restricted to the vascular compartment is not detectable until it is greater than 5% (50 ml/kg).

Much is spoken about normal fluid requirements, although in truth there is no such thing. We are all aware as adults that if we drink little we do not get dehydrated and if we drink excessively we merely diurese. Healthy children's kidneys are just as capable of maintaining fluid balance. Fluids in neonates are often prescribed upon the basis of 150 ml/kg/day but this is not related to fluid needs but is merely the volume of standard formula milk required to give an adequate protein and calorie intake. What is required clinically is a simple means of prescribing fluid such that patients are maintained well

the same bag) – the concentration of sodium being expressed in mmol/l on the side of the infusion bag, as well as a percentage. Always check the sodium concentration in mmol/l is actually what you require and take great care to specify the concentration of both the dextrose and the saline (if a dextrose/saline solution is being used) when writing the prescription to avoid ambiguity. Tables B.3 and B.4 show the composition of commonly available fluids.

Table B.3. Commonly available crystalloid fluids

Fluid	Na^+ (mmol/l)	K^+ (mmol/l)	Cl^- (mmol/l)	Energy (kcal/l)	Other
Isotonic crystalloid fluids					
Saline 0·9%	150	0	150	0	0
Saline 0·45%, dextrose 2·5%	75	0	75	100	0
Saline 0·18%, dextrose 4%	30	0	30	160	0
Dextrose 5%	0	0	0	200	0
Saline 0·18%, dextrose 4%, 10 mmol KCl/500 ml					
Hartmann's solution	131	5	111	0	Lactate
Hypertonic crystalloid solutions					
Saline 0·45%, dextrose 5%	75	0	75	200	0
Dextrose 10%	0	0	0	400	0
Saline 0·18%, dextrose 10%	30	0	30	400	0
Dextrose 20%	0	0	0	800	0

Table B.4. Commonly available colloid fluids

Colloid solutions	Na^+ (mmol/l)	K^+ (mmol/l)	Ca^{++} (mmol/l)	Duration of actions (hours)	Comments
Albumin 4·5%	150	1	0	6	Protein buffers H^+
Gelofusine	154	<1	<1	3	Gelatine
Haemaccel	145	5	12·5	3	Gelatine
Pentastarch	154	0	0	7	Hydroxyethyl starch

DEHYDRATION

Dehydration is the result of abnormal fluid losses from the body which are greater than the amount for which the kidneys can compensate. The natural mechanisms for compensation have the primary aim of maintaining circulating volume and blood pressure at all cost. Thus the majority of patients with dehydration maintain their central circulation satisfactorily. Loss of central circulatory homeostasis constitutes hypovolaemic shock and is dealt with in Chapter 10.

The major causes of dehydration in children are gastrointestinal disorders and diabetic ketoacidosis. Some renal disorders (polyuric tubulopathy with urinary tract infection, polyuric chronic renal failure and diabetes insipidus) might also present in this way. Depending on the source of fluid losses and the quantities of electrolytes lost dehydration can be divided into three types:

A convenient formula to remember is:

Percentage dehydration × Weight in kg × 10 = Fluid deficit (ml)

Thus the fluid deficit is 750 ml. The fluid deficit is essentially made up from (roughly) 0·9% saline (which has 150 mmol/l) since it is mainly extracellular fluid that has been lost which has a sodium concentration of approximately 140 mmol/l. 7.2

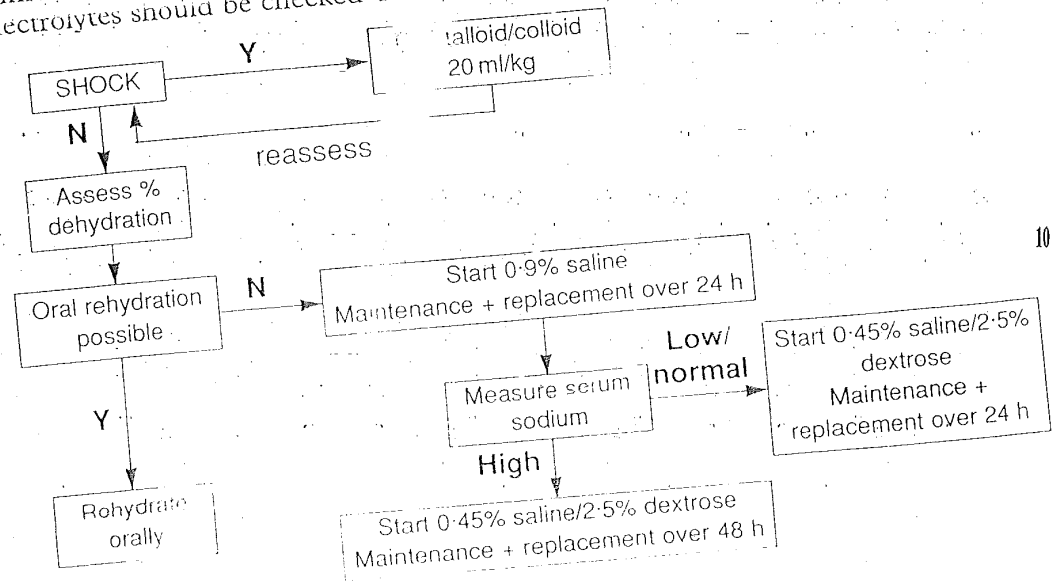
Step 2

The child also needs maintenance fluids. These can be worked out in the normal way. A 10 kg child will need 10 × 100 ml/day for normal maintenance (Table B.1) = 1000 ml. The sodium required for maintenance (Table B.2) will be approximately 3 mmol/kg × 10 kg = 30 mmol/day. 8

In total, then, the child needs 1000 ml maintenance plus 750 ml replacement of losses, totalling 1750 ml, for adequate rehydration.

If we were following the sums exactly we should put up two drips – one of 750 ml with sodium of 140 mmol/l and another of 1000 ml with 30 mmol of sodium. As fluid balance is not often an exact science (ongoing losses, clinical estimations etc.), it is usually more convenient to pick one intravenous fluid with a sodium concentration somewhere between the [illegible] saline, which has 75 mmol/l. This can be changed to fluid containing more or less sodium depending on subsequent serum sodium results. To make it isotonic 0·45% saline is made up with 2–5% dextrose. Beware of using IV fluids with no dextrose in small children as they may become hypoglycaemic. Careful reassessment and re-estimation of weight and electrolytes is essential for further fluid adjustment.

In patients with a low or normal sodium, lost fluid can be replaced over 24 hours. In hypernatraemic patients, it must be replaced over at least 48 hours and sometimes longer depending on the severity – the higher the sodium the slower the rehydration must be. If the sodium and water are corrected too rapidly in the extracellular space, water will pour into cells, and if this happens in the brain, cerebral oedema and even death may occur. Aim to bring down the serum Na in a hypernatraemic patient by no more than 5 mmol per day, for example, in an infant who presents with a Na of 170 mmol/l, the Na should be no less than 165 mmol/l by the next day. In these patients, the electrolytes should be checked 4-hourly, at least initially. 9



10

Figure B.1.

Take blood for:

- Bicarbonate/blood gases.
- Urea and electrolytes, creatinine, calcium, albumin.
- Glucose.
- Culture.
- Haemoglobin and differential white cell count.

7.2

Take urine for:

- Culture.
- Sugar.
- Ketones.

8

Fluids

Children with DKA will have lost a great deal of [illegible]n, whatever their initial measured plasma sodium. Normal saline is the correct initial fluid. The principles of fluid management outlined above work as well for DKA as for any other cause of dehydration. However, because of the hyperglycemia it is often best not to give dextrose initially. Thus, having calculated [illegible]icit, maintenance, and 24-hour requirement, this can [illegible] be given all as [illegible] saline, switching to 0·45% saline or 0·18% saline with d[illegible]ose on [illegible] blood [illegible] has fallen. With the osmotic diuresis, which will persist [illegible] the blood sugar fa[illegible] lculated fluid requirements will be an underestimat[illegible] ngoing fluid replacem[illegible] hould be recalculated 4 hourly to take into account [illegible] luid losses. Potassium [illegible] ld be added to the fluids (20–40 mmol/l initially) once [illegible] e output has been con[illegible] ed. There is a loss of potassium in DKA and, additionally, [illegible] e use of insulin will dr[illegible] potassium into cells, further lowering the plasma potassi[illegible]

9

Insulin

Insulin should be given by continuous infusion. The initial dose is 0·1 units/kg/hour. Once the blood sugar falls to less than 10 mmol/l, glucose must be added to the IV. Do not stop using insulin. This is the child's prime requirement. Run the insulin on a separate line. Add 50 units of soluble insulin to 50 ml saline. This solution is 1 unit/ml: 0·1 units/kg/hour is equal to 0·1 × weight in kg, as ml/hour. Thus a 20-kg child would have 2 ml/hour, a 35 kg child 3·5 ml/hour. This often needs decreasing to 0·05 units/kg/hour when blood sugar starts to fall. In a very young diabetic (under 5 years), start with the smaller dose.

Acidosis

10

The acidosis of DKA is initially compensated for by hyperventilation. Once the blood pH falls below 7·1, CNS depression can occur and this can prevent compensation. Acidosis will nearly always resolve with correction of fluid balance and cessation of ketosis following insulin therapy. Bicarbonate should be avoided unless the blood pH is less than 7·0, or less than 7·1 and not improving after the first few hours of fluid and insulin therapy. Many formulas exist relating the base excess to the child's weight and the bicarbonate requirement. However, because of the logarithmic relationship between [H⁺] and pH a dose of 2·5 ml/kg of 8·4% $NaHCO_3$ will correct the pH to 7·2 or 7·3 in all cases. This should be administered slowly over 2 hours by infusion. Recheck the pH after the first hour and stop the infusion if the pH is above 7·15 as the rest will correct naturally.

nephrotic syndrome. This is important as patients with nephrotic syndrome are intravascularly fluid depleted and diuretics are contraindicated.

SPECIFIC ELECTROLYTE PROBLEMS

Sodium is the major extracellular cation. Its movement is inextricably linked to that of water. Disorders of sodium balance are, therefore, those of over- and under-hydration, and are dealt with in the section on fluid balance.

Potassium

Unlike sodium, potassium is mainly an intracellular ion and the small quantities measurable in the serum and extracellular fluid represent only a fraction of the total body potassium. However, the exact value of the serum potassium is important as cardiac arrhythmias can occur at values outside of the normal range. The intracellular potassium acts as a large buffer to maintain the serum value within its normal narrow range. Thus hypokalaemia is usually only manifest after significant total body depletion has occurred. Similarly, hyperkalaemia rep[illegible] significant total body overload, beyond the ability of the kidney to compens[illegible] exc[illegible] ese statements is the situation in which the cell wall pumpin[illegible] mecha[illegible] is brea[illegible]. A breakdown of the causes of hyper- and hypokalaemia is giv[illegible] in Table B.6.

Table B.6. Causes of hypo- and hyperkalaemia

Hypokalaemia	Hyperkalaemia
Diarrhoea	Renal failure
Alkalosis	Acidosis
Volume depletion	Adrenal insufficiency
Primary hyperaldosteronism	Cell lysis
Diuretic abuse	Excessive potassium intake

Hypokalaemia

Hypokalaemia is rarely a great emergency. It is usually the result of excessive potassium losses from acute diarrhoeal illnesses. As total body depletion will have occurred, large amounts are required to return the serum potassium to normal. The fastest way of giving this is with oral supplementation. In cases where this is unlikely to be tolerated, IV supplements are required. However, strong potassium solutions are highly irritant and can precipitate arrhythmias, thus the concentration of potassium in IV solutions ought not to exceed 80 mmol/l when given centrally except on intensive care units. Fortunately this is not usually a problem as renal conservation of potassium aids restoration of normal serum levels.

Patients who are alkalotic, hyperglycaemic (but not diabetic), or are receiving insulin from exogenous sources will have high intracellular potassium stores. Thus hypokalaemia in these cases is the result of a redistribution of potassium rather than potassium deficiency and treatment of the underlying causes is indicated.

Hyperaldosteronism is a cause of hypokalaemic alkalosis. Patients with this condition will have salt and water retention and will be hypertensive on presentation. Secondary hyperaldosteronism is the body's natural response to hypovolaemia and salt deficiency and is thus a common cause of hypokalaemic alkalosis. As there is primary salt and water deficiency the patient is not usually hypertensive. The most common causes are diarrhoeal illness and salt-losing conditions such as cystic fibrosis. External loss of fluid

Sodium bicarbonate is also effective at rapidly promoting intracellular potassium uptake. The effect is much greater in the acidotic patient (in whom the hyperkalaemia is likely to be secondary to movement of potassium out of the cells). The dosage is the same as that used for treating acidosis and 2–5ml/kg of 8–4% $NaHCO_3$ is usually effective. It is mandatory to also check the serum calcium, since particularly in patients with profound sepsis or renal failure, hyperkalaemia can be accompanied by marked hypocalcaemia. The use of bicarbonate in these situations can provoke a crisis by lowering the ionised calcium fraction, precipitating tetany, convulsions or hypotension and arrhythmias.

Insulin and dextrose are the classic treatment for hyperkalaemia. They are not, however, without risks. It is very easy to precipitate hypoglycaemia if monitoring is not adequate. Large volumes of fluid are often used as a medium for the dextrose and, particularly in the patient with renal failure, hypervolaemia and dilutional hyponatraemia can then be a problem. Many patients are quite capable of significantly increasing endogenous insulin production in response to a glucose load and this endogenous insulin is just as capable of promoting intracellular potassium uptake. It thus makes sense to start treatment with just an intravenous glucose load and then to add insulin as the blood sugar rises. The initial dosage of glucose ought to be 0·5/kg/hour, i.e. 2·5 ml/kg/hour of 20% dextrose. Once the blood sugar is above 10 mmol/l, insulin can be added if the potassium is not falling. The dosage of insulin is titrated according to the blood sugar. 0·05 units/kg/hour. This can then be titrated according to the blood sugar.

The above treatments are the fastest means of securing a fall in the serum potassium but all work through a redistribution of the potassium into cells. Thus the problem is merely delayed rather than treated in the patient with potassium overload. The only ways of removing potassium from the body are with dialysis or ion exchange resins such as calcium resonium. If it is anticipated that the problem of hyperkalaemia is going to persist then the use of these treatments ought not to be delayed. Dialysis can only be started when the patient is in an appropriate environment. Ion exchange resins can be used at the outset. The dosage of calcium resonium is 1 g/kg as an initial dose either orally or rectally, followed by 1 g/kg/day in divided doses.

In an emergency situation where there is an arrhythmia (heart block or ventricular arrhythmia) the treatment of choice is intravenous calcium. This will stabilise the myocardium but will have no effect on the serum potassium. Thus the treatments discussed above will still be necessary. The dosage is 5 ml/kg of 10% calcium gluconate (i.e. 0·1 mmol/kg Ca). This dose can be repeated twice. With a very high potassium, more than one treatment can be used simultaneously.

Calcium

Some mention of disorders of calcium metabolism is relevant as both hyper- and hypocalcaemia can produce profound clinical pictures.

Hypocalcaemia

Hypocalcaemia can be a part of any severe illness, particularly septicaemia. Other specific conditions that may give rise to hypocalcaemia are severe rickets, hypoparathyroidism, pancreatitis, or rhabdomyolysis, and citrate infusion (in massive blood transfusions). Acute and chronic renal failure can also present with severe hypocalcaemia. In all cases hypocalcaemia can produce weakness, tetany, convulsions, hypotension, and arrhythmias. Treatment is that of the underlying condition. In the emergency situation, however, intravenous calcium can be administered. As most of the above conditions are associated with a total body depletion of calcium and as the total body pool is so large, acute doses will often only have a transient effect on the serum

Strictly Private and Confidential
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9th August 2005

Dear colleague,

Future direction for medical leadership in Northern Ireland

I am writing to seek your participation in a regional review of medical leadership which is taking place within the HPSS in Northern Ireland.

The involvement of doctors in management and leadership has been a consistent theme in health policy thinking over the past ten years or so. The DHSSPS has now commissioned a preliminary review of the impact of the current medical leadership model in order to identify critical issues which need to be addressed. This review will assess the success of the current model, identify the challenges facing those in medical leadership roles in the future, explore new models, key roles and responsibilities and the nature of support needed to ensure that individuals assuming leadership roles will feel confident and competent in doing so. This work will be conducted by Professor Peter Spurgeon and John Clark, International Institute for clinical leadership at the West Midlands Post Graduate Deanery and myself.

There are a number of strands to this work. A key component of this review is an attitude survey of Executives and senior medical and professional staff throughout the HPSS in Northern Ireland. It's purpose is to gather information on attitudes and views about medical leadership issues, working relationships, coordination and management issues, decision making, communications, impact across the organisation, and overall comments and reflections. We would very much appreciate your involvement through the completion of the enclosed questionnaire which should be returned to Robert Graham at the Beeches Management Centre in the addressed envelope provided **by 31 August 2005.**

I wish to assure you that this information will be treated in strictest confidence and will be used in aggregate form only. In anticipation of your participation in this exercise we are very grateful. Many thanks.

Yours sincerely

Seamus Carey
Principal Consultant

Review of Medical Leadership in the HPSS in Northern Ireland

VIEWS ON THE WORKING OF THE CLINICAL DIRECTORATE SYSTEM

PLEASE COMPLETE AS APPROPRIATE

SECTION A

BACKGROUND

1. Current Job Title: _____

2. Name of Organisation _____

3. Name of Clinical Directorate (CD) in which you work:

_____

4. How long has this CD been established?: _____ (if known)

5. How long have you worked in this Directorate?: _____

6. Your professional group:
(please tick)

Doctor	
Nurse	
Allied Health Professional	
Management	
Other (Please specify)	

SECTION B

A number of statements about Clinical Directorates are listed below. Please indicate the extent to which you agree with each statement from your own experience of working in a Clinical Directorate / with Clinical Directorates by circling your response.

1. Clinicians in this Trust are sufficiently involved in management

Strongly Agree	5	4	3	2	1	Strongly Disagree

2. Clinical Directors have adequate power and authority to carry out their role

Strongly Agree	5	4	3	2	1	Strongly Disagree

3. The sharing of professional knowledge and experience has improved since Clinical Directorates came into being

Strongly Agree	5	4	3	2	1	Strongly Disagree

4. By becoming involved in Clinical Directorates clinicians have compromised their professional independence

Strongly Agree	5	4	3	2	1	Strongly Disagree

5. Involving clinicians in management can lead to ethical conflicts

Strongly Agree	5	4	3	2	1	Strongly Disagree

6. Clinical Directorates have facilitated the devolution of managerial authority to clinicians

Strongly Agree	5	4	3	2	1	Strongly Disagree

7. Involving clinicians in management is wasteful of scarce resources

Strongly Agree	5	4	3	2	1	Strongly Disagree

8. Relationships between professional staff groups have generally improved with the advent of Clinical Directorates

Strongly Agree	5	4	3	2	1	Strongly Disagree

9. The establishment of Clinical Directorates is a way to overcome the traditional conflict between managers and clinicians

Strongly Agree	5	4	3	2	1	Strongly Disagree

10. Working relationships between Managers, Clinical Directors and their Clinical Staff within Clinical Directorates are effective

Strongly Agree	5	4	3	2	1	Strongly Disagree

11. Working relationships between different Clinical Directorates are effective

Strongly Agree	5	4	3	2	1	Strongly Disagree

12. Other consultants resent the power of the Clinical Director

Strongly Agree	5	4	3	2	1	Strongly Disagree

13. Clinical Directorates place too much power in the hands of doctors maintaining the dominance of the medical hierarchy

Strongly Agree	5	4	3	2	1	Strongly Disagree

14. There is more conflict between managers and clinicians in a Clinical Directorate structure

Strongly Agree	5	4	3	2	1	Strongly Disagree

15. Budgets were more easily managed under the traditional organisational structure

Strongly Agree	5	4	3	2	1	Strongly Disagree

16. Directorate managers can control clinical activity within a Clinical Directorate structure

Strongly Agree	5	4	3	2	1	Strongly Disagree

17. Directorate managers have a wider appreciation of the strategic direction of the trust compared to their clinical colleagues

Strongly Agree	5	4	3	2	1	Strongly Disagree

18. Directorate managers will always want more control

Strongly Agree	5	4	3	2	1	Strongly Disagree

19. Clinical Directors require good Directorate managers to be effective

Strongly Agree	5	4	3	2	1	Strongly Disagree

20. The organisation is better able to manage costs since the advent of Clinical Directorates

Strongly Agree 5 4 3 2 1 Strongly Disagree

21. Clinical Directors should offer leadership and direction rather than day-to-day operational management

Strongly Agree 5 4 3 2 1 Strongly Disagree

22. Clinical Directorates have been effective in bringing doctors into management

Strongly Agree 5 4 3 2 1 Strongly Disagree

23. I feel valued as a key member of my clinical directorate team

Strongly Agree 5 4 3 2 1 Strongly Disagree

24. Clinical Directorates are the most appropriate way of making doctors accountable

Strongly Agree 5 4 3 2 1 Strongly Disagree

25. Clinical Directors require more time to effectively conduct their management and leadership roles

Strongly Agree 5 4 3 2 1 Strongly Disagree

26. Clinical Directors are not given real power to manage having poorly defined management roles

Strongly Agree 5 4 3 2 1 Strongly Disagree

27. Non-medical staff have lost influence as a result of the Clinical Directorate system

Strongly Agree 5 4 3 2 1 Strongly Disagree

28. Clinical Directorates have enhanced consultation and communication concerning key service developments

Strongly Agree 5 4 3 2 1 Strongly Disagree

29. Since becoming a Clinical Directorate, my service area now operates more efficiently

Strongly Agree 5 4 3 2 1 Strongly Disagree

30. Doctors are the major beneficiaries of the introduction of Clinical Directorates

Strongly Agree 5 4 3 2 1 Strongly Disagree

31. There is more duplication of management effort with Clinical Directorates

Strongly Agree 5 4 3 2 1 Strongly Disagree

32. The organisation is now more patient-focused because of Clinical Directorate structures

Strongly Agree 5 4 3 2 1 Strongly Disagree

33. Service Improvements are easier to deliver since Clinical Directorates came into existence

Strongly Agree 5 4 3 2 1 Strongly Disagree

34. Clinical Directors add little value to the management of the hospital

Strongly Agree 5 4 3 2 1 Strongly Disagree

35. The day-to-day running of Directorates engages doctors in tasks that could be done by non-clinical managers

Strongly Agree 5 4 3 2 1 Strongly Disagree

36. Clinical Directors are well informed about significant issues which the Trust needs to address.

Strongly Agree 5 4 3 2 1 Strongly Disagree

SECTION C

OPEN COMMENT

We are most interested in how you feel the Clinical Directorate system in your hospital has worked. Please identify up to 3 ways in which the advent of Clinical Directorates have (i) improved and (ii) worsened the management of your organisation.

(PLEASE PRINT YOUR ANSWERS CLEARLY)

(i) Improved

(a) _____

(b) _____

(c) _____

(ii) Worsened

(a) _____

(b) _____

(c) _____

If you have views on what might be a more effective system for engaging clinicians in the management and leadership of the organisation in the future, please specify.

_____

_____

_____

_____

_____

_____