

**Online Supplementary Material**

Scherpbier-de Haan ND, van Gelder VA, van Weel C, Vervoort GMM, Wetzels JFM, de Grauw WJC. Initial implementation of a Web-based consultation process for patients with chronic kidney disease. *Ann Fam Med*. 2013;11(2):151-156.

<http://www.annfammed.org/content/11/2/151>

**Supplemental Appendix 1. Example of a Telenephrology Consultation**

**TELE NEPHROLOGY**

**Name patient:** XXX  
**Date of birth:** X-X-1934  
**Male**

**CONSULTATION**

Name Family Physician XXXXXX, date of consultation, X-X-2011, 13.20

Medical history :	14042011 Chronic Kidney Disease 27032009 Smoking stopped in 1962 27102001 Hypertension 19051995 Choreoideamelanoma OD 23111998 Diabetes mellitus type 2,
Actual medication:	31032011 METFORMINE 500MG TABLET 2D2T 31032011 SOTALOL HCL ACTAV 80MG TABL 1D1T 31032011 SIMVASTATINE 40MG TABLET FO 1D1T 31032011 GLIMEPIRIDE RP 3MG TABLET 1D1T 31032011 LISINO/HYDTHIA SD 20/12,5 T 1D1T 31032011 ACETYLSAL CARD CF 80MG DISP 1D1T 14042011 AMLODIPINE RP TABLET 5MG 14.0 1D1T
Medication changes in last 4 months?	No
Auto-medication (NSAIDS) :	No
Referral	unknown

Online Supplementary Data

<http://www.annfammed.org/content/11/2/151/DC1>

physical examination	31-03-2011	01-02-2011	30-12-2010	04-10-2010	01-07-2010	01-04-2010	29-12-2009	30-09-2009	17-06-2009	27-03-2009	30-12-2008	30-09-2008	03-06-2008	03-04-2008	03-01-2008	05-10-2007	17-08-2007	06-07-2007
Weight	77 kg	77.6 kg	77 kg	75.8 kg	75.8 kg	75.5 kg	77.6 kg	76.4 kg	76,0 kg	78,1 kg	77,6 kg	77,3 kg	77,0 kg	78,0 kg	77,9 kg	76,8 kg	77,0 kg	78,3 kg
BMI			25															
Length			176															
Smoking						before												

RR	31-03-2011	22-03-2011	01-02-2011	30-12-2010	04-10-2010	01-07-2010	01-04-2010	29-12-2009	30-09-2009	17-06-2009	30-12-2008	08-12-2008	30-09-2008	03-06-2008	03-04-2008	06-07-2007
RR syst	164 mmHg	138 mmHg	149 mmHg	161 mmHg	140 mmHg	142 mmHg	146 mmHg	149 mmHg	140 mmHg	144,0 mmHg	151,0 mmHg	172,0 mmHg	135,0 mmHg	143,0 mmHg	152,0 mmHg	137,0 mmHg
RR diast	88 mmHg	87 mmHg	85 mmHg	87 mmHg	81 mmHg	75 mmHg	68 mmHg	78 mmHg	76 mmHg	70 mmHg	89 mmHg	84 mmHg	81,mmHg	76 mmHg	74 mmHg	82 mmHg

Laboratory results	08-04-2011	25-03-2011	22-03-2011	01-02-2011	30-12-2010	26-03-2010	07-04-2009	27-03-2009	02-07-2008	03-06-2008	28-03-2008	29-08-2007	20-08-2007
Creatinine	151 micromol/l	141 micromol/l				101 micromol/l	103,0 micromol/l				95,0 micromol/l		94,0 micromol/l
eGFR MDRD	42 ml/min/1,73m2	45 ml/min/1,73m2				> 60 ml/min/1,73m2	60,0 ml/min/1,73m2				60,0 ml/min/1,73m2		60,0 ml/min/1,73m2
Fasting glucose		8,0 mmol/l	10.4 mmol/l	10.4 mmol/l	13.8 mmol/l	8,6 mmol/l	10,1 mmol/l	11,8 mmol/l	8,4 mmol/l	8,8 mmol/l	9,0 mmol/l		6,3 mmol/l
HbA1c		60 mmol/l				64 mmol/l							
Tot chol		2,8 mmol/l				2,5 mmol/l	2,7 mmol/l				2,4 mmol/l		

Online Supplementary Data

<http://www.annfammed.org/content/11/2/151/DC1>

HDL		0,7 mmol/l				0,8 mmol/l	1,1 mmol/l				1,1 mmol/l		
LDL		1,5 mmol/l				1,2 mmol/l	1,2 mmol/l				0,9 mmol/l		
Chol/HDL		3,9				3,2	2,6				2,2		
TG		1,44 mmol/l				1,13 mmol/l	0,96 mmol/l				0,96 mmol/l		
Hb	7,8 mmol/l											8,0	7,8
MCV												93,0	92,0
Albumin													
Sodium		138				139	138,0				140,0		138,0
Potassium		3,6 mmol/l				3,7 mmol/l	3,8 mmol/l				3,8 mmol/l		3,4 mmol/l
Calcium	1,2 mmol/l												
Phosphate	1,4 mmol/l												
PTH	6,2 mmol/l												
Vitamin B12													
Folic acid													
Ferritin												70,0	
Serum-iron													
Iron binding capacity													
Transferrin													
Vitamin D													
Urea													
Bicarbonate													

Urine	25-03-2011	26-03-2010	07-04-2009	28-03-2008
Tot protein urine				
Alb/creat ratio	2,1 mg/mmol	1,0 mg/mmol	0,2 mg/mmol	0,6 mg/mmol
creatinine urine	8,4	8,1	3,8	8,8
Albumine urine				
Sediment	normal			

Question :

Dear colleague,  
I saw this patient for his annual diabetes control. MDRD appeared to be decreased from > 60 to 45 ml/min/1.73 m<sup>2</sup>. Two weeks later the MDRD was 42 ml/min/1.73 m<sup>2</sup>. In the anamnesis I did not find a reason: no NSAID use, no recent medication change. The alb/creat ratio increased, but is still normal. Blood pressure is higher than before; I added amlodipine 5 mgr. I plan to refer this patient. What should I do meanwhile?

If telenephrology were not available, would you refer the patient?

- Yes
- No

**Answer**

XXXXX, nephrologist, XXXXXXXX hospital

Date X-X-2011, 15.30

Dear colleague,  
The fact that this patient does not have proteinuria, makes it plausible that the decrease in renal function has a prerenal cause, a tubulointerstitial nephritis (TIN), or a post-renal cause (prostate hypertrophy/retention?). Do you have an ultra sound of kidneys and bladder?  
A TIN could be caused by hydrochlorthiazide. The combination enalapril/HCT increases the risk of acute kidney injury in case of dehydration or fever. I suggest that you stop lisinopril/HCT for 2 weeks and increase the dose of the Ca-antagonist, if the blood pressure rises. Please get in touch by Telenephrology after 2 to 3 weeks to report eGFR.  
Take care: metformin 2x1000mg is too high for this renal function; 2x 500mg is the limit. Glimepiride can be increased to 6 mg. The sotalol dose is rather high.

Patient should be referred to a nephrologist :

- Yes
- No
- No, unless :

Renal function is not ameliorating after medication change

How much time did you need to fill in the form? :

10 minutes

**ADDITIONAL MESSAGES**

Message from

- I will follow your advice

family physician

o I will not follow your advice, because.....

XXX

dd X -X-2011 17:32

Dear colleague,

I will order an ultrasound of kidneys and bladder.

I will change the medication conform your advice and I will report in a follow-up consultation

---

**Online Supplementary Material**

Scherpbier-de Haan ND, van Gelder VA, van Weel C, Vervoort GMM, Wetzels JFM, de Grauw WJC. Initial implementation of a Web-based consultation process for patients with chronic kidney disease. *Ann Fam Med*. 2013;11(2):151-156.

<http://www.annfammed.org/content/11/2/151>

**Supplemental Appendix 2. Dutch Interdisciplinary CKD-Guideline for Primary Care and Nephrology: Recommendations for the Care of Patients With CKD**

	<b>Normo / microalbuminuria</b>	<b>Macroalbuminuria</b>
<b>Patients &gt; 65 years</b>		
eGFR > 60 mL/min/1.73 m <sup>2</sup>		
eGFR 45-60 mL/min/1.73 m <sup>2</sup>		
eGFR 30-44 mL/min/1.73 m <sup>2</sup>		
eGFR < 30 mL/min/1.73 m <sup>2</sup>		
<b>Patients &lt; 65 years</b>		
eGFR > 60 mL/min/1.73 m <sup>2</sup>		
eGFR 45-60 mL/min/1.73 m <sup>2</sup>		
eGFR 30-44 mL/min/1.73 m <sup>2</sup>		
eGFR < 30 mL/min/1.73 m <sup>2</sup>		
Green = evaluation and treatment in primary care. Yellow = consultation of a nephrologist (without referral). Red = referral to secondary care.		
Adapted from Grauw de W, Kaasjager HAH, Bilo HJG, Faber EF, Flikweert S, Gaillard C, et al. Landelijke Transmurale Afspraak Chronische nierschade, <a href="http://nhg.artsenet.nl/kenniscentrum/k_richtlijnen/k_samenwerking/k_ltas.htm">http://nhg.artsenet.nl/kenniscentrum/k_richtlijnen/k_samenwerking/k_ltas.htm</a> (with permission of the Dutch College of General Practitioners).		

**Online Supplementary Material**

Scherpbier-de Haan ND, van Gelder VA, van Weel C, Vervoort GMM, Wetzels JFM, de Grauw WJC. Initial implementation of a Web-based consultation process for patients with chronic kidney disease. *Ann Fam Med*. 2013;11(2):151-156.

<http://www.annfammed.org/content/11/2/151>

---

<b>Supplemental Appendix 3. The Family Physician's Intention to Refer Compared to the Nephrologist's Referral Advice Plotted Against the Dutch Interdisciplinary CKD-Guideline for Primary Care and Nephrology</b>		
Dutch CKD-guideline (could only be applied to patients with urine assessment)	Family physician	Nephrologist
referral to secondary care n = 23	Refer n = 12	Refer n = 6
Consultation of a nephrologist n = 43	Refer n = 15	Refer n = 7
treatment in primary care n = 33	Refer n = 10	Refer n = 0