Information Sheet
Phosphate binders for the long-term treatment of hyperphosphataemia in patients on dialysis

Re-classified from ‘AMBER’ (shared care) to ‘GREEN’ after specialist initiation by Derbyshire JAPC in November 2014

Phosphate Binders are indicated for the control of hyperphosphataemia in adult patients with chronic kidney disease.

A number of phosphate binders are available which may be used in the context of a multiple therapeutic approach. These include calcium carbonate (Calcichew), calcium acetate (Renacet, Phosex), sevelamer (generic*), lanthanum carbonate (Fosrenol), and aluminium hydroxide (Alucaps). These products may be used in combination with 1-hydroxycholecalciferol (Alfacalcidol) or one of its analogues and/or cinacalcet, to control the development of chronic kidney disease - mineral and bone disorder (CKD-MBD).

Calcium-based phosphate binders may be used as the initial phosphate binder therapy for patients with chronic kidney disease whose serum calcium levels are within the normal range, as they are cheap and relatively efficacious. They should always be used in conjunction with dietary phosphate restriction, to control serum phosphorus levels. Where possible, calcium acetate (Renacet) should be used as the first-line phosphate binder. Calcium carbonate (Calcichew) should be used in patients who require a chewable tablet, or for patients whose serum calcium levels are below the normal range (less than 2.2mmol/l). If hypercalcemia develops with the use of calcium-containing phosphate binders, it may be necessary to change to a non-calcium containing phosphate binder, or a combination of calcium acetate and a non-calcium containing phosphate binder. Aluminium-based phosphate binders may be used, only if other phosphate binders are contraindicated, not tolerated or are ineffective. If they are used, aluminium levels are checked due to the risks of accumulation.

Non-calcium based phosphate binders may be used for patients with raised serum calcium levels, despite modifications in the dose of alfacalcidol, and cinacalcet use where appropriate. Sevelamer or lanthanum may be required, depending upon dose required and patient preference for a chewable tablet or tablet to swallow. These may be used in addition to other therapies. They may also be required to improve patient concordance by reducing the tablet burden, or changing the way the phosphate binder is taken. As there are concerns regarding the calcification and cardiovascular complications with high doses of calcium-based phosphate binders, non-calcium containing phosphate binders may be indicated.

* Sevelamer prescribed generically is cost effective over Renagel and Revelar brands which come as hydrochloride and carbonate salt respectively. The SPC and personal communication, UKMi (June 2016) and local consultant opinion suggest that the different salts of sevelamer are interchangeable with the generic version.

Hospital specialists will initiate patients on treatment with the expectation that GPs will continue to prescribe after stabilisation. Patients will be given an initial supply of phosphate binder sufficient for 4 weeks maintenance therapy.

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### Aluminium Hydroxide

| Alu-Cap 475mg Capsule | May range from 4 to 20 capsules daily (approximately 2 to 10 g dried aluminium hydroxide gel) | To be taken with meals | Patients should adhere to dietary advice | Aluminium hydroxide reduces absorption of tetracyclines and vitamins and may delay the absorption of quinidine | Aluminium salts are contra-indicated in patients with hypophosphataemia and acute porphyria |

### Sevelamer

| Sevelamer 800mg tablets (Prescribe generically as preferred cost effective choice over Renagel and Revela) | Initially 2.4 – 4.8g daily in 2-3 divided doses. Adjusted according to serum-phosphate concentration. | To be taken with meals (and snacks if required) | Patients should adhere to dietary advice | The 2.4g Renvela sachet should be dispersed in 60ml of water prior to administration and the suspension should be ingested within 30 minutes of preparation. | Sevelamer is contra-indicated in patients with bowel obstruction |

### Lanthanum

| Fosrenol 500mg, 750mg 1000mg Chewable tablets | Usual dose range 1.5 – 3g daily in divided doses adjusted according to serum-phosphate concentration. | To be taken with or immediately after meals | Tablets must be chewed and not swallowed whole | Powder sachets to be mixed with soft food and consumed within 15 minutes | Compounds known to interact with antacids should not be taken within two hours of lanthanum. Interactions with tetracyclines and quinolones are theoretically possible |

| Fosrenol 750mg, 1000mg Powder sachets | | | | | Lanthanum is contra-indicated in pregnancy |

### References

1. Derbyshire Shared Care Guideline – Phosphate binders for the treatment of hyperphosphataemia in patients on dialysis, June 2014
5. Sevelamer carbonate SPC (Genthon, Zentiva) accessed via emc on 13/3/2017
6. UKMi personal communication Ref 99278 (17/6/2016)

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