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WS10.1 Can home drug audit prevent oversupply and indicate adherence?

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Objectives: Following deaths of 2 CF patients, relatives returned drugs valued €4,443 and €3,631. 1 had >100 days supply of pulmozyme and stocks of 7 drugs which had date expired. In clinic, CF patients claim non-adherence with drugs because stocks have run out. In 2014, CF centres in England will take over all prescription of high cost nebulised drugs (HCND). Would it be cost efficient to assess home drug stocks to prevent oversupply, wastage and to help assess adherence?
Methods: We administered a questionnaire and undertook home visits to 27 patients attending our CF centre to audit their drug stocks.
Results: Patients were prescribed 2–23 drugs (median 13), and held stocks of 2–27 drugs. 1% of all drugs were date expired. 15% drugs were no longer prescribed (7.7% by value) of which 82% by value were antibiotics. For 19% drugs, patients held >10 weeks supplies. 37/369 prescriptions were for HCND. For HCND, no patient held >2 months supply. Patients held no home stocks for 15% of prescribed drugs. 18/27 patients lacked stocks of at least 1 prescribed drug. Some held no stocks of 43% of their prescription. Patients held no home stocks for 9/37 (24%) HCND. Lack of home stocks was not correlated with FEV1 or educational level. Many patients had poor awareness of levels of stocks. One patient predicted 7 days, but had median 88 days; another predicted 84 days, but had 7.5 days. 62% patients reported having previously run out of medications; yet 7/10 patients who reported never having run out, held no home stocks of at least 1 prescribed drug.
Conclusion: Home drug audits offer no cost savings with HCND. Visits may identify patients who lack stocks and so are non adherent.

WS10.2 Adherence to study drugs in clinical trials

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Objectives: Clinical trials are all based on the presumption that patients are adherent to the study protocol. However, no data exists to assess if trial participants are more adherent to a study drug regimen then to their regular treatment. The aim of this study was to determine adherence to study drugs by counting used and unused drugs and compare the result with the number of doses the patient should have taken over a specified time period.
Methods: All clinical trials carried out at the Hadassah CF Center over the last 5 years were included. Actual adherence as determined by counted drugs was analyzed according to drug administration mode, study lengths and number of study visits. A subset of patients answered a two-part questionnaire covering study specific and general treatment specific issues.
Results: Eight studies with patient numbers varying between 4 and 32 per trial were analyzed. For 7/8 studies adherence was between 80–100%. No difference was found between inhalations (solutions, powder) or oral (80–100%) administration. However, adherence decreased substantially if the patients had to prepare the drugs themselves (62%). Study length influenced adherence, the longer the study the worse the adherence (82% at the beginning, 42% after 36 months). A substantial decrease was noted over Holiday periods and during the summer months. No correlation was found between number of study visits and adherence to study drug.
Conclusion: Patients are generally more adhering when taking study drug then for their regular treatment. However, study length, mode of administration, and timing according to Holydays and vacation are crucial to the success of a clinical trial.

WS10.3 Adherence with ivacaftor in cystic fibrosis patients with the G551D mutation

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Objectives: Ivacaftor is an expensive but potentially curative treatment for CF patients with the G551D mutation, and concordance with therapy underpins not only its clinical efficacy but also its continuing prescription. Despite this, a number of patients have poor adherence, and we wished to study the reasons for this further.
Methods: Dispensing records and case notes for all patients prescribed ivacaftor were reviewed. Patients were deemed adherent if >80% of ivacaftor prescriptions were fulfilled, and outcomes were compared for corresponding periods before and after treatment commenced.
Results: Of 17 patients prescribed ivacaftor (6.0% of our clinic), 14 were deemed adherent (100% prescription fulfilment versus 45.4% in the non-adherent group). Mean duration of treatment was similar in both groups (10.4 vs 9.4 months). The adherent patients tended to be older and have both a higher level of educational achievement and socioeconomic status, and had improvement in outcomes (see table). The non-adherent group had poorer baseline health indicators and showed little or no improvement following ivacaftor prescription: all had chaotic lifestyles which had previously impacted on their CF management.

Table: Adherence with ivacaftor

	Mean age	FEV1%		BMI		Admissions	
		Pre	Post	Pre	Post	Pre	Post
Adherent (n = 14)	27.9	78.6%	91.0%	25.3	25.9	1.1	0.2
Non-adherent (n = 3)	20.3	49.5%	50.0%	18.5	17.7	5.3	3.0

Conclusion: Nearly one fifth of our eligible patients do not take ivacaftor regularly. This is a reflection of their chaotic lifestyles: we are continuously working with these patients to improve their adherence with what is potentially a lifesaving treatment.

WS10.4 Pharmacist intervention to influence beliefs about medication in an adult cystic fibrosis clinic

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Objectives: To use the CF Quality of Life (CFQol) and Beliefs about Medicines (BMQ) questionnaires to assess the beliefs of patients with CF with a view to understanding reasons for non-adherence with treatment.
Methods: All 30 patients within the clinic prescribed inhaled antibiotic therapy were asked to complete CFQoL and BMQ and to undertake a discussion with the CF pharmacist, designed to educate the patient about their treatment and to identify and overcome barriers to adherence with therapy. 21 patients were recruited, of these 12 completed pre and post-intervention questionnaires. The results were analysed for an effect of intervention, gender and CF Trust banding. BMQ data was compared to published data from other diseases.
Results: Pharmacist intervention demonstrated a statistically significant ($p = 0.0339$) reduction in the harm domain of the BMQ indicating reduced concern about harm from medication. Effects on other domains of the BMQ and all domains of the CFQoL were not statistically significant. No statistically significant differences were seen between male and female patients or across different banding levels. Downwards trends were seen in QoL domains as banding increased with the exception of "concerns for the future". BMQ data demonstrated higher perceived need for medication and lower perceived harm from medication than patients with other chronic diseases.
Conclusion: Pharmacist intervention improved scores in the BMQ. Improvements in the BMQ have been associated with higher levels of adherence in other diseases. People with CF have a greater appreciation for, and lower concerns of harm from their treatment than people with other chronic diseases.