WARM HOLDING OF VEGETABLES IN COOK-CHILL AND COOK-FRESH CATERING SYSTEMS

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It has been claimed that cook-chill catering systems have nutritional advantages compared with cook-fresh systems because food is not held hot for long periods. However, studies used to support this claim compare well managed cook-chill operations with conventional services where food is held hot for up to five hours after cooking (Light and Walker 1990).

As part of a study on nutrient losses in hospital catering, the time/temperature histories of vegetables cooked in 23 NSW hospitals (10 cook-chill, 13 cook-fresh) were recorded to determine normal operating conditions. The hospitals were size matched (ranging from 29-1064 beds) and the preparation of all vegetables cooked and served to patients on a single day of observation was monitored.

	Time food held >50°C Mean±SD (min)		Time food held 10-50°C Mean±SD (min)	
	Cook-Fresh	Cook-Chill	Cook-Fresh	Cook-Chill
Potatoes	110.2±43.8	71.3±17.5*	14.8±16.5	221.0±136.2**
Pumpkin and Carrots	90.8±28.6	56.1±16.1**	13.2±21.7	153.5±83.7**
Green Vegetables	70.7±48.7	34.0±21.9*	14.1±23.5	178.8±131.0**

*P<0.05 **P<0.01

On average, vegetables in cook-chill operations were held at high temperatures (>50°C) for significantly shorter times than in cook-fresh systems (see table), although there were wide variations between hospitals (10-102 min, cook-chill; 10-175 min, cook-fresh). However, in cook-chill hospitals the food was exposed to much longer periods of holding at temperatures between 10-50°C (ranging from 29-454 min). This occurred most commonly during prolonged cooling after cooking and during plating and distribution of chilled food.

Little is known about the kinetics of nutrient destruction at lower temperatures although losses of up to 17% ascorbic acid have been reported while chilling cooked potatoes to 15°C over two hours (Bognar 1980). The extent of nutritional losses during the cooling and distribution of food in cook-chill operations deserves further study.

BOGNAR, A. (1980). In 'Advances in Catering Technology'. p387, ed. G. Glew. (Applied Science Publishers: London).

LIGHT, N.and WALKER, A. (1990). In 'Cook-chill catering: technology and management.' (Elsevier Science Publishers: London).

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