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## Original Research

## Organizations of food redistribution and rescue

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## ABSTRACT

**Objective:** Food insecurity affects 13.4% of the USA population, despite the fact that 30–40% of all food is deposited in a landfill. Food rescue nutrition is the process of redistribution of surplus food to the impoverished. The aim of this study is to document the extent of involvement of organizations in food rescue nutrition.

**Study design:** In this cross-sectional study, a survey about organizations involved in food rescue nutrition was developed, validated, and then tested.

**Method:** Directors of 100 organizations involved in food rescue nutrition from eight Southwestern States in the USA participated in this research.

**Results:** These organizations provided an average of 2 million kg of food to more than 40,000 clients each month. Food assistance programs had an average of eight workers and 3081 volunteers. In addition to food, these organizations provided other services such as clothing, clinical, and childcare. The agencies encountered several challenges, including lack of resources that resulted in reducing food portions and turning away clients.

**Conclusions:** The extent of involvement of community-based programs in food rescue nutrition was strong in eight Southwestern states in the USA. Organizations involved in food redistribution helped alleviate food insecurity in their clients. Sustainability of these charitable networks was dependent on availability of resources and sufficient volunteers. Health professionals should encourage these organizations by providing support through donations of time, money, and/or food.

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## Introduction

In the USA, 133 billion pounds of all food is deposited in a landfill annually.<sup>1,2</sup> This amount of food waste is remarkable, particularly since 13.4% of the population has been reported to lack food security.<sup>3</sup> Food insecurity is a socio-economic inability to obtain or purchase uncontaminated, nutritionally healthy food in sufficient amounts.<sup>4</sup> One solution for this

problem is the donation and redistribution of unwanted or unsold food to low-income populations. In this process, surplus foods are redirected to food banks or charitable and faith-based agencies that provide assistance to those in need. These organizations include agencies, churches, shelters, orphanages, and safe places that offer help for the poor, disabled, and/or victims of sex and domestic violence.<sup>5</sup> This process of food reallocation to those in need is called food rescue nutrition, the basis of the present research.

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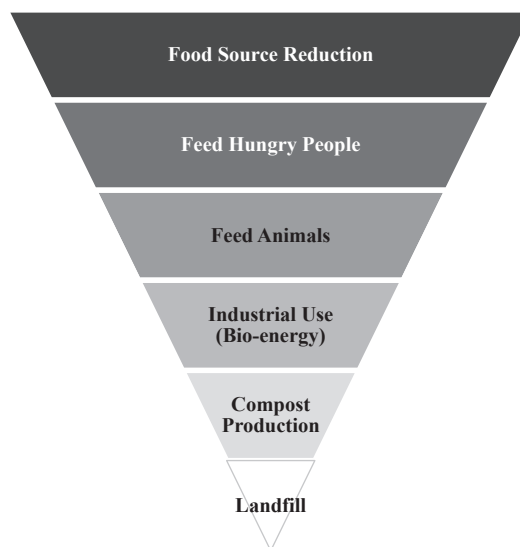
In the past, donation of foods was limited because of the potential liability of adverse health consequences from poor food sanitation. However, the Good Faith Donor Act of 1985 was amended in 1989 to protect individuals from being pursued in courts from illness due to food donations.<sup>6</sup> In 1996, the Bill Emerson Good Samaritan Food Donation Act removed this liability for business as well.<sup>5</sup> It was realized that it is better to donate unwanted food rather than throw it away when people scavenge dumpsters to find food or beg on the streets. At present, the redistribution of unwanted food to give to others to improve their diets and food security is a major phenomenon in the USA.

A large number of organizations and individuals participate in diverse aspects of food rescue nutrition to offer benefits to millions of clients each year. More than 200 food banks have been estimated to exist nationwide. These include Second Harvest Food bank of Santa Clara and San Mateo Counties in California, Cleveland Food bank in Ohio, St. Mary's Food Bank Alliance in Arizona, East Teas Food Bank in Texas, Mid-Ohio Food Bank, Blue Ridge Area Food Bank in Virginia, Food Bank for New York City, Second Harvest Food bank of Orange County in California, Inter-Faith Food Shuttle in North Carolina,<sup>7</sup> and Capital Area Food Bank of Texas.<sup>8</sup>

One example of a regional food bank is the Capital Area Food Bank of Texas. This organization collects and distributes food to the food insecure through churches and associated agencies. The food is then distributed in 21 counties in Texas.<sup>8</sup> This network collaborates with government organizations such as the Supplemental Nutrition Assistance Program (SNAP; formerly Food Stamps), Special Supplemental Nutrition Program for Women, Infants and Children (WIC), School Breakfast Lunch Program, Emergency Food Assistance and Elderly Nutrition Programs.<sup>9</sup> Other non-government charities in the area include Caritas, Easter Seals, Fishes, Mobile Loaves, and Casa Marianella.<sup>8</sup> Collectively, their aim is to support individuals of all age groups who need help, shelter, and food. In 2015, the Capital Area Food Bank of Texas redistributed 44 million pounds of food to low-income populations in Central Texas.<sup>8</sup>

One aspect of food rescue nutrition is the reduction of food loss. A decrease in food waste can be achieved by the food recovery hierarchy proposed by the US Department of Agriculture as a food waste management strategy (Fig. 1).<sup>10</sup> This pyramid consists of five levels: (1) reduction of food production; (2) donation of surplus food to those in need; (3) processing of unwanted food to generate animal food; (4) use of food waste, particularly fats and oils in industry as an energy source (bio-gas or bio-diesel) via anaerobic digestion; and (5) decomposition of unavoidable food waste to become a natural soil fertilizer.<sup>10,11</sup> Thus, food loss can be decreased by the conversion of unconsumed food into an environmental, economical, and societal benefit instead of being disposed in landfills.<sup>10,11</sup> Food rescue nutrition for the transfer of unwanted food to those in need is an important component of food waste management strategy.

The efforts of international organizations in helping to reduce hunger in malnourished populations in developing countries are well known. More recently, there is a new global trend of responding to food insecurity in developed countries by food redistribution. In Canada in 2014, collection of unused food



**Fig. 1 – Food recovery hierarchy; developed by the US Department of Agriculture as a food waste management strategy. The US Environmental Protection Agency, 2016. Obtained from <https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy>.**

from restaurants and grocery stores, and redirection to the impoverished was documented in 29, 68, 122, 90 and 31 food programs in Victoria, Edmonton, Toronto, Québec city, and Halifax, respectively. All these agencies combined provided food benefits to 137,340 Canadians every month.<sup>12</sup> Similarly, the food bank of Australia donated food to the Red Cross, 2500 community agency and 800 schools. These emergency food programs redistributed food benefits to 900,000–2,000,000 individuals.<sup>13</sup> The Dutch Food Bank also is connected with 160 food pantries and 510 associated agencies that provided an annual amount of 37,000 food boxes, supporting 94,000 individuals.<sup>14</sup> In South Korea, the Central Food Bank supplied 407 food banks, which in turn participated in offering food benefits to more than 400,000 Koreans.<sup>15</sup> Thus, food redistribution is occurring at both a national and global basis.

Redistribution of unwanted food to the impoverished is a low-cost method to reduce the gap between food loss and food insecurity in the low income. This approach lessens food wastage, increases food availability, and minimizes the use of natural resources such as water and energy.<sup>16</sup> To date, the literature lacks documentation regarding the extent of food relocation and the role of programs involved in the USA, particularly in the Southwestern part of the country. The aim of this paper is to document the extent of involvement of organizations in food rescue nutrition in the Southwestern United States.

## Methods

### Design and subjects

A cross-sectional study was conducted in Spring 2015 to investigate the extent of involvement of organizations in food rescue nutrition. The research was based on the development

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