1976). A review of SSD cream in burn wounds was reported by Hussain and Ferguson (2006). Although SSD reduced bacterial colonization, there was no definite evidence of improved healing or reduced infection and sepsis. Mafenide 5% solution was superior to 1% SSD cream in complicated contaminated war wounds infected with *Acinetobacter baumanii* (Kucan and Heggers, 2005).

Significant quantities of silver can be absorbed through severe burns treated with SSD cream, but no detrimental effects of high tissue levels have been clearly identified (Wan *et al.*, 1991; Coombs *et al.*, 1992). Current recommendations for the initial care of uninfected burns include either SSD cream (Masterton, 1992), 5% mafenide acetate cream, or 0.5% silver nitrate soaks (Sanford, 1993; Gilbert *et al.*, 2009).

7p. Umbilical cord care

SSD cream has been compared with washing with castile soap and triple dye for controlling neonatal bacterial colonization. Triple dye and SSD inhibited bacterial colonization, the former being better for *S. aureus,* but SSD was superior in inhibiting group B streptococci and Gram-negative organisms (Speck *et al.*, 1977).

7q. Chronic granulomatous disease

Johnston *et al.* (1975) noted a decrease in the frequency and severity of bacterial infections in four of five children with chronic granulomatous disease on long-term sulfonamide therapy, which was out of proportion to the anticipated antibacterial effect of the drug. The killing of sulfisoxazole-resistant *E. coli* and *S. aureus* by leukocytes from patients with this disease was enhanced in the presence of the sulfonamide. The explanation for this effect of sulfonamides is unknown. Long-term treatment of chronic granulomatous disease with sulfisoxazole or particularly cotrimoxazole has given good results (van der Meer and van den Broek, 1984; Margolis *et al.*, 1990) (see Chapter 92, Trimethoprim and trimethoprim–sulfamethoxazole [cotrimoxazole]).

7r. Dermatological conditions

Prolonged administration of sulfapyridine or the long-acting sulfonamide sulfamethoxypyridazine may be useful for the control of dermatitis herpetiformis (Willsteed *et al.*, 2005). Sulfapyridine is generally started at 500 mg four times daily and gradually increased to a total of 4–5 g daily. The chemically related drugs, the sulfones (such as dapsone, 25–50 mg daily initially, increasing to 200 mg daily in some patients), appear to be more effective. For many years sulfapyridine or dapsone was the mainstay of therapy. It is now apparent that the strict adherence to a gluten-free diet will often reduce the need for such treatment and in some cases allow cessation of medication (Katz *et al.*, 1980; Leonard and Fry, 1991).

These drugs may also be useful for bullous pemphigoid and chronic bullous dermatosis of childhood (Ahmed and Moy, 1982). The anti-inflammatory effect of sulfapyridine is thought to be due to impairment of neutrophils and monocytes and inhibition of cyclo-oxygenase and lipoxygenase-dependent pathways (Elder *et al.*, 1996). Sulfamethoxypyridazine has been studied in the treatment of topical steroid-refractory mucous membrane pemphigoid (Thornhill *et al.*, 2000). There was a significant improvement in objective clinical scores and pain scores with a 1-g daily dose. Three of 25 patients (12%) were withdrawn because of side effects (allergic reaction, hemolysis). It has also been used in combination for steroid-refractory pemphigoid nodularis (500–1500 mg daily) without adverse effects (Gach *et al.*, 2005).

Ocular cicatricial pemphigoid is a severe, sight-threatening systemic disease that sometimes requires systemic immunosuppression. Sulfapyridine, 50 mg twice daily, has been used successfully to reduce moderate to marked inflammation without significant adverse effects (Elder *et al.*, 1996). Saw *et al.* (2008) demonstrated that sulfonamides alone were not as efficacious as immunosuppressive therapy for ocular pemphigoid. However, outcomes were improved if used in combination with immunosuppressants such as cyclophosphamide or mycophenolate. Oral sulfasalazine with pentoxifylline has been shown to be an effective treatment in young patients with pemphigus (Dogra *et al.*, 2015) and in psoriasis (el-Mofty *et al.*, 2011), and topical sulfasalazine has been used for steroid-unresponsive oral lichen planus (Jeong *et al.*, 2015; Omidian *et al.*, 2010).

Topical sulfacetamide has been used for the treatment of mild to moderate inflammatory acne vulgaris and other facial dermatoses (Thiboutot, 2000; Feldman *et al.*, 2004; Del Rosso, 2008; Draelos, 2010). Previously it had frequently been combined with sulfur and alcohol (which can lead to poor tolerance and local irritability), but there are preparations of 10% sulfacetamide available. It is also efficacious in other dermatological conditions such as rosacea (Margolis, 2005; Torok *et al.*, 2005; Nally and Berson, 2006; Goldgar *et al.*, 2009), seborrheic dermatitis (Tuzun *et al.*, 2014), and dandruff (Gupta and Nikol, 2004). There have been several case reports of poor tolerance of sulfur-based sunscreen (Torok *et al.*, 2005).

Topical sulfacetamide lotion is also efficacious against pityriasis (tinea) versicolor (Hull and Johnson, 2004). Topical sulfur–sodium sulfacetamide preparations led to resolution of *Demodex* folliculitis in a child with acute lymphoblastic leukemia in whom topical permethrin or topical metronidazole failed (Herron *et al.*, 2005).

SSD has also been efficacious in reducing symptoms of radiation-induced dermatitis after radiotherapy (Hemati *et al.*, 2012; Wong *et al.*, 2013).

7s. Impregnated central venous catheters and other devices

There has been increasing use of central venous catheters impregnated with chlorhexidine–SSD (CHSS) for the prevention of catheter-related bloodstream infection (CRBSI) and colonization. Early first-generation CHSS catheters were coated externally; however, newer second-generation catheters are internally and externally coated. Initial studies demonstrated